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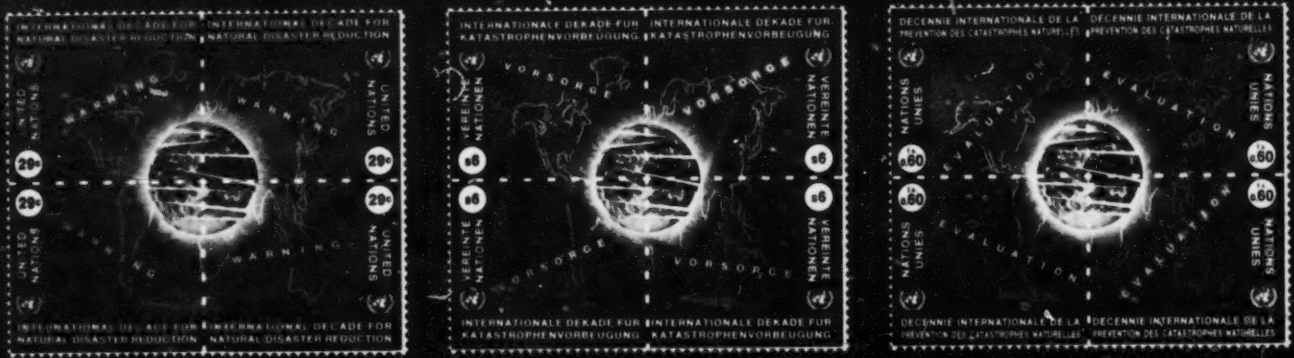
IDNDR
1990-2000

A
Safer World
for the 21st Century


INTERNATIONAL DECADE FOR NATURAL DISASTER REDUCTION
UNITED NATIONS
WARNING
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INTERNATIONALE DEKADE FÜR KATASTROPHENVORBEUGUNG
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DECENNIE INTERNATIONALE DE LA PREVENTION DES CATASTROPHES NATURELLES
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EVALUATION
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Vibrant and Varied are the colours and shapes which abound our Earth

But also we find lines with colour which tie North to South and East to West

Can we not find one which brings all together for a common cause?

A colourless line, a new meeting point for disaster reduction?

May it be so in the next Century.

May we ascend to our nobler selves, to higher missions.

Worthy of our name, humanity

Just as naturally, just as beautifully

as the harmony which exists in the colours and shapes of our Earth.

Kenji Koga, Japanese artist who donated the above artwork for the commemorative stamps issued by UNPA on the occasion of the World Conference on Natural Disaster Reduction.

World Conference on Natural Disaster Reduction

23-27 May 1994

Yokohama Japan

Secretariat
International Decade
for Natural Disaster
Reduction (IDNDR)

Secrétariat
Décennie internationale
de la prévention des
catastrophes naturelles

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About the
International Decade for Natural Disaster Reduction

A Decade Dedicated to Disaster Prevention and Preparedness

To combat the fatalistic attitude that people are helpless in the face of disasters, the UN launched the International Decade for Natural Disaster Reduction (IDNDR, 1990 - 2000). The ***objective of IDNDR*** *is to "reduce through concerted international action, especially in developing countries, the loss of life, property damage, and social and economic disruption caused by natural disasters." UN General Assembly Resolution 236, 1989). IDNDR focuses on natural disasters such as earthquakes, tsunamis, volcanic eruptions, landslides, avalanches, cyclones, floods, drought and locust infestations.*

Why has the UN dedicated ten years to reducing the impact of disasters?

- **Natural hazards kill more than one million people each decade and leave countless others homeless**. More than 90% of these victims are in developing countries.
- **Economic losses from natural disasters are on the rise.** In developed and developing countries alike, the cost of disasters are a setback to economic growth. The global economic cost of disasters rose from $44 billion in 1991 to $60 billion in 1992. Early estimates of the 1994 earthquake in Los Angeles range from $15 - $30 billion.
- **Prevention and preparedness measures make a difference.** A 1977 cyclone in Andra Pradesh, India killed 10,000 people. In 1990 the death toll from a similar cyclone in the same area was 910. Emergency preparedness and early warning measures save lives and money.
- **Scientific knowledge, technology and management** tools exist to avert catastrophes; they need to be applied and implemented.
- **Closer cooperation is needed between sectors in all parts of society** -- national governments, local communities, business, NGOs and international organizations -- to reduce the suffering and damage caused by natural disasters.

READEX
FICHE

IDNDR Special High Level Council

Her Excellency
Mrs. M. Eugenia Charles
Prime Minister of Commonwealth of Dominica

Prof. Dr. HRH Princess Chulabhorn Mahidol
President of Chulabhorn Research Institute, Thailand

H.E. Mr. Takeo Fukuda
Former Prime Minister of Japan

H.E. Mr. Miguel de la Madrid Hurtado
Former President of the Republic of Mexico

The Honourable Mrs. Suzanne Mubarak
Arab Republic of Egypt

What can be done?

Shift from relief to prevention, mitigation and preparedness. The world's financial, logistical, political and media emphasis on short-term emergency relief measures should shift more towards disaster preparedness and prevention. This is an essential step in moving from disaster management towards sustainable development.

Link disasters with development. For disaster prevention, preparedness and mitigation to be truly successful, these measures need to be integrated in our daily lives -- in basic health, environmental, economic and social activities. Most importantly, disaster reduction measures should be a standard part of development programmes.

Build local capacities. Strengthening community capacity to cope with disasters is the most effective way to reduce the effects of natural hazards in disaster-prone areas.

Encourage investment and research. Disaster prevention and preparedness programmes deserve more investment in their own right, particularly those related to applied research.

Adopt an integrated approach. Decision-makers, practitioners and researchers in disaster management need to work more closely, national and international actions could be better coordinated; professionals of different disciplines related to disasters -- such as engineers, doctors and economists -- can benefit from working together.

Capitalize on existing technology and management tools. Science and technology exist to reduce the impact of disasters that could be far more utilized; basic management and safety procedures proven to save lives and property could be more widely adopted.

Focus on vulnerable groups. Those most vulnerable to disasters -- old people, children and communities which lack basic infrastructure and health care -- are often least able to cope.

Organizational Arrangements

The ***Special High-Level Council*** is a group of internationally renowned persons who act as "ambassadors" for natural disaster reduction. They advise the Secretary General on IDNDR, promote public awareness, and mobilize public and private sector support for disaster reduction.

Members of the ***Scientific and Technical Committee*** are experts drawn from a wide variety of disciplines related to disaster management, including health care, meteorology, journalism, geology, public administration and others. The committee develops overall programmes and guidelines for bilateral and multilateral cooperation, and assesses activities being carried out by various organizations under the IDNDR umbrella.

An ***Inter-Agency Working Group*** of relevant UN agencies and related organizations meet regularly to discuss policies and coordinate measures for disaster reduction.

Over 125 ***IDNDR National Committees*** and focal points exist around the world. Made up of national leaders from government, business, academia and voluntary organizations, the committees concentrate on mobilizing political commitment and promoting public awareness of disaster reduction measures and policies within their countries. National committees in industrialized countries address their own vulnerability to disasters as well as review their policies on development and humanitarian assistance, in light of IDNDR's goals.

The IDNDR ***Secretariat***, based in Geneva, is part of the UN Department of Humanitarian Affairs. It Led by Dr. K. Olavi Elo, the Secretariat is responsible for coordination of activities undertaken around the world on behalf of the International Decade for Natural Disaster Reduction, and provides secretariat support to the Special High Level Council, the Scientific and Technical Committee and the Inter-Agency Working Group. The Secretariat also provides guidance and technical support for a number of national and regional conferences related to disaster mitigation. Over the past year, it has concentrated on coordinating the preparations by governments, UN agencies, associations and other groups for the ***World Conference on Natural Disaster Reduction***. The World Conference will take place from 23-27 May 1994 in Yokohama, Japan, and is the first UN conference ever to be dedicated to prevention and preparedness of disasters.

IDNDR publishes ***STOP Disasters***, a newsletter which appears six times yearly and is distributed free of charge in French, English, Spanish and Italian. An ***International Day for Natural Disaster Reduction*** is observed yearly on the second Wednesday of October.

IDNDR Special High Level Council

H.E. Mr. Idé Oumarou
Senior Adviser to the President and Former Secretary-General of OAU, Niger

Mrs. Lisbet Palme
Former Chairperson of the UNICEF Board, Sweden

Mrs. Marilyn Tucker Quayle
United States of America

Mr. Janez Stanovnik
Former Executive Secretary of the United Nations Economic Commission for Europe, Former President of the Presidency of Slovenia

Mr. N. P. Laverov
President, Russian Academy of Sciences, Vice-Chairman, National Commission of the Russian Federation for the IDNDR, Russian Federation

Disaster Reduction Activities

IDNDR has adopted a "Framework Programme" of activities which are designed to minimize the chances that natural hazards become disasters. Recommended by the Scientific and Technical Committee, the activities include:

- Identifying hazard zones and conducting hazard assessments;
- Conducting vulnerability assessments, risk assessments and cost/benefit analyses;
- Building awareness among policy-makers and decision-makers;
- Monitoring, predicting and warning about impending natural hazards;
- Implementing long-term preventive measures;
- Establishing short-term protective measures and preparedness plans;
- Carrying out early intervention measures.

The Scientific and Technical Committee recommends that these activities be complemented by initiatives for education, training, public information, transfer and application of technology, and formulation and adoption of appropriate policies.

Targets for the Year 2000

All countries, as part of their plan to achieve sustainable development, should have in place:

- Comprehensive national assessments of risks from natural hazards, with assessemnts taken into account in development plans.
- Mitigation plans at national and/or local levels, with long-term prevention, preparedness and community awareness measures.
- Ready access to global, regional, national and local warning systems and broad dissemination of warnings.

Funding

Funding for disaster reduction programmes comes directly from the countries themselves, or through bilateral and multilateral arrangements. The coordination and promotion activities of the Secretariat, the Special High Level Council and the Scientific and Technical Committee are funded through extrabudgetary contributions to the IDNDR Trust Fund, as recommended by the General Assembly.

In drawing up a global framework for the International Decade for Natural Disaster Reduction, the historically piecemeal and event-driven approach to natural disasters has been put aside. IDNDR emphasizes the integration of natural disaster reduction measures (hazard forecasts, risk assessment, preparedness planning and early warning) into existing national development plans, policies and programmes.

Most importantly, IDNDR works to raise political and public awareness about measures we can take to make ourselves safer from disasters. IDNDR is building a coalition of governmental agencies, international organizations, scientific and technical associations, universities and research centres in a cooperative effort to gather support for natural disaster reduction.

For more information, contact:

International Decade for Natural Disaster Reduction Secretariat

Department of Humanitarian Affairs

Palais des Nations
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World Conference on
Natural Disaster
Reduction
Yokohama, Japan, 23-27 May 1994
IDNDR 1990 - 2000

ROUNDTABLE ON THE MEDIA, SCIENTIFIC INFORMATION AND DISASTERS

Media throughout the world play a vital role in educating the public about disasters, warning of approaching disasters, gathering and transmitting information about affected areas, alerting government officials, relief organizations and the public about specific needs, and facilitating discussions about disaster preparedness and response. These vital tasks, however, raise equally important issues about the roles of, and the relationships among the media, scientists, relief organizations and government officials, in generating, transmitting and responding to disaster-related information.

THE MEDIA, SCIENTIFIC INFORMATION AND DISASTERS are the subject of a Roundtable on May 24, 1994, at the World Conference on Natural Disaster Reduction in Yokohama, Japan. Prominent media figures, scientists, and relief officials will address, among other issues:

- How is scientific information relating to natural disasters conveyed to the media? How do scientists work with the media and how could that relationship be improved?

- How do the media use scientific information? What steps do media take to verify the accuracy of information? How rapidly is information conveyed to the relevant communities (e.g., policymakers, relief organizations, affected countries, the public)?

- How is scientific information conveyed by the media used by scientists, policymakers, relief organizations, affected countries, and the public? What is the impact of that information and how could positive impact be enhanced and negative impact mitigated?

Confirmed participants include: **Larry Register**, award-winning Senior International Editor in charge of special projects for CNN's 19 international bureaus; **Ferruccio Ferrigni,** Director of the Programmes, European University Centre for Cultural Heritage; **Brett M. Pierce**, Producer for Children Television Workshop's International Television Group; and **Fred H. Cate**, a Senior Fellow of The Annenberg Washington Program and Associate Professor of Law at Indiana University School of Law-Bloomington. Invited participants include, among others: **James P. Bruce**, Chairman of the Scientific and Technical Committee; **Dr. Alberto Giesecke**, Director, Regional Centre of Seismology for South America; **Robert C. Sheets**, National Hurricane Center, Miami; **Peter Walker**, Director of the Disaster Policy Department of the International Federation of Red Cross and Red Crescent Societies; and **Sanaa Youssef**, Bureau Chief, *Al Akhbar*, New York.

The Roundtable is organized, in cooperation with the Secretariat of the International Decade for Natural Disaster Reduction, by The Annenberg Washington Program in Communications Policy Studies, sponsors of Communication *When It's Needed Most: How New Technology Could Help in Sudden Disasters; Media, Disaster Relief and Images of the Developing World*; and other meetings and publications on communications and disasters.

For further information contact Fred H. Cate, telephone (202) 393-7100, facsimile (202) 638-2745, internet @ fcate indiana.edu, or Elizabeth Kassaye, Public Information Officer, IDNDR Secretariat, UN/DHA telephone (41-22) 7985850, telefax (41-22) 7338695.

Faced with the Furies of Nature

By the International Decade for Natural Disaster Reduction

Put in a nutshell, the International Decade for Natural Disaster Reduction symbolizes a rejection of the mass burials of thousands of people in their sleep as was witnessed in the recent earthquake in India or the cyclical washing-away of thousands of cyclone victims in neighbouring Bangladesh as "inevitable" occurrences.

Initiated by a group of scientists who acutely felt the possibilities which exist in the fields of science and technology for averting the losses which disasters claim, the effort led to the designation of the 1990s as the International Decade for Natural Disaster Reduction. Governments, research centres, financial institutions, international and regional organizations were asked to contribute their inputs to the realization of the Decade's objective - reduction in loss of life and property damage incurred by natural disasters.

But how serious are these losses to warrant international attention and the interest of the various partners who have been called upon to take action on behalf of the Decade?

Ambassador D. Nanjira of Kenya who was recently chairing meetings on Human Rights and IDNDR during the same week drew the following parallel: ***Disasters do not accuse. They do not give time. They kill.*** And kill they do by the thousands and usually in a period of time which ranges from a few seconds to minutes. Over 3 million people have been killed by disasters during the past two decades. The slow on-set disasters are no less ruthless either. Close to 600,000 have died and 150 million have been affected by drought-induced famine in Africa during the same 20 year period.

The effects which disasters have on the economies of communities and countries is also staggering. Munich Re-Insurance puts the 1992 economic losses to natural disasters at 60 billion US dollars and insured losses at US$ 25 billion. Disasters not only decimate years' and decades' worth of labour and investment but they also have a draining effect on the economies of countries by placing new and unforseen demands for reconstruction and rehabilitation purposes.

So what is to be done to tackle this problem? Decade partners propose an international collaboration commensurate with the increasing gravity and worldwide distribution of the problem. They firmly believe that:

- it is possible to achieve a significant reduction in disasters through the mobilization of international cooperation in the utilization of existing but under-utilized advances in the fields of science and technology
- it is possible to achieve significant reductions in loss of life and damage to property by improving coverage and credibility of warning systems
- it is possible to align disaster reduction measures with development plans without compromising the latter and guaranteeing, on the contrary, its sustainability
- it is cost effective at national, regional and international levels to rechannel resources from disaster relief to disaster prevention activities.

As was noted by Dr. Frank Press, Senior Fellow, Carnegie Institution and one of the initiators of the Decade, "***Disasters are tragic, not only because of the great losses to the victims, but also because they are often avoidable. The means to reduce disasters' toll and ensure a safer future are available. Mitigating the impact of disasters is not only a moral imperative; it also makes developmental and environmental sense***".

An effort to drive this message home will be made at the forthcoming World Conference on Natural Disaster Reduction to take place in Yokohama between 23-27 May 1994.

For the IDNDR message to make a lasting "sense" to decision makers, however, a vital body of information needs to be developed to form a basis for action and to arrive at a decision on the rate at which these actions will be taken. Such a body of information covers among other issues; the size and frequency of major natural disasters which could be expected in the future, the magnitude of risks from natural disasters compared to other risks, the location and size of vulnerable groups to disasters, the major causes and levels of vulnerability to disasters; the costs and benefits of disaster reduction measures and their distribution at national, regional and international levels and the potential which exists for aligning disaster reduction measures with development programmes, and for joint regional and international disaster reduction programmes.

Conference organizers which comprise United Nations Agencies, scientific institutes, national and international organizations, have taken up the challenge of providing information on these issues in the form of technical session presentations, poster sessions and other Conference platforms in Yokohama.

There will be an exchange of views and ideas on the advances made in science and technology which could be applied for the reduction of losses from natural disasters. A close scrutiny of the reasons for the lag in the application of scientific knowledge for natural disaster reduction will also be made by government leaders, scientists and representatives of regional and international organizations who will be presenting their views and experiences at the Conference. A wide variety of topics have been chosen to examine the problems and possibilities from all angles and by a wide variety of participants which also includes children who will be sending their views on the subject in the form of drawings.

What comes after Yokohama?

Conference organizers are not prepared to let loose ends prevail.

Encouraging research and the dissemination of information on the world's vulnerability to disasters is an important Decade and Conference objective which is expected to lead to increased public interest and demand for a Safer 21st Century. On the other hand, presenting what is possible or should have been possible to communities whose choices are limited might be taxing their interest and their patience.

95% of disaster-related deaths occur among 2/3rds of the world's population that occupy developing countries. 80% of the poor in Latin America, 60% of the poor in Asia and 50% of the poor in Africa live on marginal lands which are characterized by poor productivity and high vulnerability to environmental degradation and natural disasters. On the other hand, the scientific talent currently devoted to serving the needs of the vulnerable, according to the Brandt report, is less than 1% of the totality of the scientific enterprise.

Accordingly, much of the attention of the Conference will be devoted not to what might already be obvious but to what has proved to be elusive, i.e. the mechanism of putting the results of science and technology at the service of diaster reduction in all disaster-prone regions of the world and in particular in developing countries, as called for by the UN Resolution on the Decade.

The Conference plans to take up this second challenge in a plan of action to be formulated for the second half of the Decade.

It will be a challenge of formulating an international framework of cooperation through which it would be possible to expand the choice of the most vulnerable, of keeping their choice between survival now and a safer tomorrow to a minimum.

As implied by the Chairman of the Preparatory Committee on the Conference, disasters provide only a single recourse system - that of making ourselves less vulnerable. And the more we do it in a concerted manner, the better the end result. The Yokohama Conference which will bring together representatives of governments, scientific institutions and regional and international organizations from all parts of the World, will provide an unprecedented opportunity for making this happen.■

For additional information, contact: IDNDR Secretariat, Palais des Nations, CH-1211 Geneva 10, Telephone: (41.22) 798 6894/ 740 0377, Fax: (41.22) 733 86 95.

Natural Disasters - Fatalism Is Out of Date

by the International Decade for Natural Disaster Reduction

Geneva, April 1994 -- In the past 20 years earthquakes, volcanoes, landslides, floods, tidal waves, tropical storms, drought, locust invasions, and other natural disasters have killed 3 million people, inflicted injury, disease, homelessness and misery on one billion others, and caused billions of dollars of material damage, more than $100 billion in 1991 and 1992 alone.

"Unfortunately, most people in the world view natural disasters with fatalism. They think that nothing can be done about them. This attitude is understandable but wrong. We have to try to change it. There is, in fact, a great deal that can be done to save lives and limit the damage."

This is the opinion of Dr. Olavi Elo, head of the International Decade for Natural Disaster Reduction (IDNDR). It is shared by 25 members of IDNDR's Scientific and Technical Committee.

About midway through the decade of the 1990s, to be precise from 23 to 27 May of this year, a World Conference on Natural Disaster Reduction will bring together 1,000 scientists, disaster experts, government policy-makers, relief officials, and representatives of non-governmental organizations (NGOs) in Yokohama.

Dr. Elo, a Finnish physician, says "take the case of tropical storms, known in different parts of the world as hurricanes, typhoons and cyclones. They can have wind velocities of up to 350 km an hour, rains exceeding 80 cm in a few days, and storm surges of 8 metres, covering hundreds of square km. One storm can cause more than 100,000 casualties. A localized tornado can create 500 km an hour wind speeds."

Sounds dreadful, doesn't it? But space technology has improved early warning systems, so it need not be. For example, in 1951 Hurricane Charlie struck Jamaica and killed 150 people. In 1988, Hurricane Gilbert, the most powerful Caribbean storm ever recorded which could easily have killed thousands, hit Jamaica, whose population had doubled since 1951, and the death toll was only 45. Besides the improved warning system, Jamaicans had better knowledge of areas at high risks from flooding. There was also a widespread public awareness that a lot could be done to avoid loss of life and damage. There was no reason to be fatalistic.

"Another example: in November 1970 a tropical cyclone, combined with a high tide and heavy rainfall, struck Bangladesh, leaving more than 300,000 people dead and 1.3 million homeless. The Chittagong Meteorological Office issued adequate warnings, but many people were simply unwilling to abandon their homes. In May 1985 a cyclone of comparable strength and a storm surge almost as great as the one in 1970 hit the same area. This time there was a better local dissemination of disaster warnings and the people were better prepared to respond to them. The loss of life, although still high, was 10,000 or about 3% of that in 1970."

Admittedly, early warnings work for storms, say sceptics, but they don't for earthquakes.

"It is true," says Dr. Elo, "that in spite of scientific research, accurate predicting of earthquakes has made little progress. However, earthquake-resistant construction design has proved highly effective. Engineers have also designed buildings to resist strong winds. These special construction techniques cost modest sums."

Volcanic eruptions are not well understood either. The story of Pompeii is engraved in people's minds and, more recently, in Colombia in 1985, the Nevado del Ruiz erupted and took 22,000 lives. But such major disasters are rare because most volcanoes are far from large population centres. Where people insist on living at the foot of an active volcano, because of the fertility of the soil or the presence of explotable minerals, it is possible to protect them from the impact of small or moderate eruptions (particularly of mudflows or lava flows) by building dykes, check-dams or lava-cooling installations to stop or divert these hazards.

The rapid concentration of more and more people in megacities puts them at higher risk than if they were living in rural areas and small towns. In 1950 only 8 of the world's 20 biggest cities were in developing countries, whereas today 17 are.

Roughly 90% of natural disasters occur in the developing world, and the Gross National Product loss is estimated to be 20 times greater than in industrialized countries. The death toll, too, is far higher in developing countries. For example, natural disasters, on the average every year, cause 63 deaths in Japan, while in Peru, with one-sixth the population and similar natural hazards, there are, as an annual average, 2,900 victims.

Some natural disasters afflict only developing countries. Periodically, swarms of locusts overrun farmland and everything else in their way in Sahelian Africa, the Middle East and West Asia. A swarm can consist of 40 to 80 billion insects, weigh 80,000 tonnes, and devour this weight in food every day. They do untold damage to agriculture, livestock and forests.

"Invasions of locusts are not inevitable," says Dr. Elo. "One method that might prevent or control them would be to reduce their population build-up in breeding areas, eliminate or forestall the swarming process, and destabilize sexual maturation and egg-laying."

Natural disasters do not occur in a vacuum and they are not simply acts of God. Humanity plays a role, too, frequently as an accomplice. Flooding can result from heavy rainfall and melting snow, but it can also be provoked by deforestation, erosion, poor farming practices, and other unwise human activities.

Tsunamis (Japanese for harbour wave) are usually generated by a submarine earthquake or volcanic eruption and grow in amplitude as they advance towards a coast. Most countries along the Pacific rim, especially Japan and the Philippines, and all the Pacific islands are vulnerable. Sometimes these tidal waves originate in earthquakes as far away as South America.

"When a disaster occurs, invariably the whole world reacts spontaneously and generously," says Dr. Elo. "Nevertheless, it is important to realize that the affected community bears most of the financial burden. International aid seldom exceeds 4% of the economic loss."

IDNDR's director continued: "We would like to modify the present and traditional emphasis on disaster relief and to stress, instead, disaster prevention and mitigation. Scientific and engineering progress in the past decade or so -- satellite data gathering, greater understanding of weather phenomena, the behaviour of the Earth's crust and plate tectonics -- has made this a realistic possibility. But the technologies have to be given to the developing world where the toll in human lives is rising sharply. People need to be trained in disaster preparedness, new building construction must be earthquake-resistant, early warning systems should be generalized, countries have to assess risks and produce hazards maps."

"All these activities will probably be part of the Action Plan that the Yokohama Conference will adopt 10 weeks from now. But just as important as any of them is the sine qua non campaign to convince people that natural disasters can be avoided, predicted, resisted, and the amount of damage they cause and the number of lives they take substantially reduced. Fatalism is out of date." ■

Note to journalists: for interviews or additional information, please contact the IDNDR Secretariat tel: (41.22) 917.4848 or 917.4855 or from 21 March, tel: (41.22) 798.6894, fax (41.22) 733.8695, Geneva.

When Going To School Could Save Your Life

There is a line in a popular song that says, "it's not the bullet (that kills), it's the hole". Thanks to research, we now know that the majority of deaths during earthquakes and violent windstorms are caused by the collapse of buildings and other constructions. We also know that communities which are prepared for an imminent battering by nature can escape with minimal loss of life and damage to property. For over thirty years, the United Nations Educational, Scientific and Cultural Organization (UNESCO) has played a significant part in gathering knowledge about natural hazards. Now the challenge is to apply this knowledge to save the lives and cultural heritage of those at risk.

by UNESCO

People cause disasters

In geological terms our planet is still active. The jig-saw pieces (plates) making up the Earth's crust are continually moving over and against each other, causing earthquakes and volcanic eruptions. Nothing can be done to stop these natural events or the awesome *tsunami*, (seismic sea waves - from the Japanese *tsu*, harbour and *nami*, wave) they sometimes create. Similarly, typhoons and tornadoes, which wreak annual havoc in some parts of the world, are the natural effects of specific, unavoidable climatic conditions.

What can be avoided, or at least greatly reduced, is the heavy toll of human life, property and resources that turns natural hazards into disasters. While rich countries are just as exposed as the poor to natural hazards, 95% of the three million people killed and one billion affected by disasters in the last two decades were those least prepared and least able to cope, living in heavily populated parts of the developing world.

UNESCO's contribution to disaster reduction

"Our slogan", says Badaoui Rouhban, a programme specialist in UNESCO's Earth Sciences division, "is that although hazards are inevitable, the risks which may arise from them are not and can be reduced by continuous understanding of the hazards, their distribution in time and space and by adopting mitigating measures".

1960
The United Nations Economic and Social Council asks UNESCO to begin a comprehensive study of the ways and means to reduce earthquake damage.

1968
The mandate includes other natural hazards - tsunamis, volcanic eruptions, landslides and river floods.

1980
The study of natural hazards becomes an integral part of UNESCO's science sector programmes.

This translates into a series of intiatives to:

- **identify, assess and evaluate the risks associated with natural hazards**

This is an ongoing process. It involves the collection of massive quantities of data to produce hazard maps, divided into zones of risk. These data can come from continuous monitoring of seismic activity as well as analysing records of when and where earthquakes, volcanic eruptions, and other hazards have occurred in the past. As a result, we now know, with considerable accuracy, where these hazards will occur in the future. We also know which communities are most vulnerable. But we are still unable to say exactly when nature will strike. That is why the UNESCO programme also emphasises prevention.

- **develop means to reduce the impact of natural hazards**

There is a three-pronged strategy involving:

- **early-warning and evacuation**

Tsunamis travel at over 600 kph and can produce 30-metre high waves, thousands of kilometres from the epicentre of an earthquake, in a matter of hours. But they cannot be seen from satellites or aircraft and need sensitive monitoring equipment on the ground. As a result of international co-operation, 23 nations now belong to the Pacific Tsunami Warning System based in Hawaii. By linking evacuation plans to the warning system, disaster can be averted.

Similarly, UNESCO, with the UN Environmental Programme (UNEP), has identified 100 high-risk volcanoes and is helping set up an international system of rapid response. There are other networks to monitor earthquakes and floods.

- **application of a code to make buildings resistant**

Most people killed or injured in earthquakes and windstorms are crushed by falling buildings. We have known for many years how to strengthen new buildings so that they do not collapse under the stresses and strains these hazards cause. In vulnerable developed countries like the United States and Japan, these principles are rigidly applied as part of a building code. In the urban sprawl of developing countries the code is often not enforced. And in traditional villages or shanty towns the code has to be translated for very different construction materials and methods to those used in cities.

Following studies by consultant architects, UNESCO has developed a package of educational services to member countries on how to make buildings resistant to earthquakes and windstorms. Where resources are scarce, the best strategy may be to make the school safe. It is usually the biggest building in a village and can be used as a shelter.

Another problem is to strengthen existing buildings to resist hazards or to restore them after a disaster. For UNESCO this sometimes overlaps with its commitment to conserve World Heritage sites. The best known example is its campaign to save Venice and its lagoon from flooding.

- **education of all levels of societies at risk**

School is also a good way to educate children and their parents in how to maintain buildings, what to do when disaster strikes and how to avoid becoming vulnerable in the first place. UNESCO also regularly publishes educational materials and helps train engineers and technicians.

Future challenges

Says Badaoui Rouhban, "today there is a body of scientific knowledge. If this is consolidated and applied, it will reduce disasters. The challenge for the future is to reach out further to those communities at the bottom of society who are most vulnerable". This not only involves translating educational materials into hundreds of dialects and training engineers, but getting communities to abandon homes in hopelessly exposed sites. It also means shifting away from agricultural practices (like forest clearing) that lead to desertification or flooding and landslides. These slow-onset hazards are often man-made, and their management requires the political will to move from disaster response to disaster prevention. ■

For further information please contact: UNESCO, Paris, Telephone: (33.1) 45.68.10.00, Fax: (33.1) 45.67.16.90

World Conference on Natural Disaster Reduction
Yokohama, 23-27 May 1994

Scientific and Technical Poster Sessions

The World Conference on Natural Disaster Reduction provides individuals and organizations the opportunity to present their research findings in the Scientific and Technical Poster Sessions. These sessions are organized by the United Nations Educational, Scientific and Cultural Organization (UNESCO).

The Poster Sessions will enable scientists and experts to present reports on the development of new technology as well as projects which illustrate the application of proven technology to natural disaster reduction. Throughout the Conference, these sessions will provide a unique forum for scientists and experts who deal with natural hazards issues to exchange ideas on disaster reduction strategies.

The Poster Sessions will take place on seven half-days. They will illustrate the following seven themes :

I. Afternoon of Monday 23 May: IDNDR International Demonstration Projects.
II. Morning of Tuesday 24 May: Information and technology systems including early warning systems.
III. Afternoon of Tuesday 24 May: Education.
IV. Afternoon of Wednesday 25 May: Health
V. Afternoon of Wednesday 25 May: Social Science's topics
VI. Morning of Thursday 26 May: Earth Science, Engineering and Architecture
VII. Afternoon of Thursday 26 May: Legislation, regulation and land use.

This schedule may be modified according to the final list of posters, the number of confirmed participants and the final distribution of posters among the sessions.

The Poster Sessions will be held in room 305 and the poster locations will be marked at the room's entrance. The schedule will be indicated in the Conference's Draft Work Programme as well as in the daily "Journal" which will be available during the Conference.

unicef

Reducing Vulnerability to Disasters - A Development Challenge

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by United Nations Children's Fund

"Development helps lessen the effect of disasters on those who are usually the most severely affected - women and children in poor communities. Disasters must be treated as an integral concern of development; otherwise, their impact can halt or even reverse the development process," says James P. Grant, Executive Director of the United Nations Children's Fund (UNICEF). "The World Conference on Natural Disaster Reduction provides an opportunity to re-examine the special vulnerability of children and women to floods, drought, earthquakes and other natural phenomenon. We have to find ways to reduce that vulnerability."

As the world's population increases, putting pressure on limited resources, the environmental degradation and overwhelming poverty associated with such an increase contribute to both the frequency and impact of natural disasters. Poverty, population growth and environmental deterioration are the underlying causes of vulnerability to disaster, and have to be tackled if the world is to mitigate the impact of disasters. Reducing such vulnerability is the long-term goal of development work.

The social dislocation caused by wars and conflicts -- including increased poverty, the loss of most basic services, environmental abuse, food shortages, the break-up of families and communities and a sharp decline in developmental progress -- also greatly decreases the capacity of people to cope with a natural disaster.

By the same token, natural disaster can lead to conflict. For example, when drought results in famine, at first families and communities support each other, sharing whatever they have. But as the situation worsens and food shortages become desperate, threatening survival, conflicts can break out in the struggle for remaining scarce resources such as crops and livestock. Complex emergencies such as drought and famine, caused or complicated by war, as experienced, for example, in Ethiopia, Mozambique, Somalia and the Sudan in recent years, are often considered to be a phenomenon of their own. But in fact these emergencies, if analysed from a historical perspective, can also be seen as part of one continuum in the battle for development.

In Mozambique during the 1991-1993 southern Africa drought, the vast majority of the affected population were women and children living in remote rural areas and struggling to survive during the 16-year-long civil war. UNICEF advocated powerfully with both the Government and RENAMO rebel leaders for the opening of "corridors of peace" for humanitarian assistance. Ultimately, this advocacy was successful and UNICEF was then able to focus on supporting supplementary and therapeutic feeding programmes for malnourished children. Emergency medical supplies, soap, clothing, seeds and tools and assistance for vaccination campaigns were also provided.

In unprepared communities, when disaster strikes, all progress is halted and often reversed. Health and nutritional standards fall, basic services are interrupted, household food security is threatened and economies are damaged. As families and communities become further impoverished and disadvantaged by disaster, the choices open to them diminish and their dependence on others increases.

UNICEF has as its goal the achievement of a better standard of living for children, their mothers and the families and communities that support them. The attainment of this goal clearly depends on the successful resolution of the problems of poverty, population growth and environmental degradation confronting so many in the developing world.

Long-term programmes to enhance the lives of women and children, by improving their health, educational level and nutritional status, raising their confidence and level of environmental awareness and increasing their economic status and household food security, all serve to better prepare women and children to cope with disaster when it strikes.

Putting children first

Disasters exact the hardest toll on children. Because of their youth and dependency, children are the first to suffer from lack of shelter, warmth, proper food and health care. If already in a poor state of health and nutrition, they will succumb even more rapidly to malnutrition, diarrhoeal diseases, respiratory infections and other preventable diseases in the wake of disaster. In conflict situations or in poverty stricken areas subject to repeated natural disasters, children endure often extreme physical and emotional trauma and require special attention. The death, dislocation and separation, physical injury and destruction of homes and livelihoods that occur during disasters make remedial measures to reduce anxiety and stress very important. The rapid re-opening of schools following a disaster, for example, can be a considerable help to traumatized children, re-establishing a routine and restoring a semblance of normalcy to their lives. Even temporary, makeshift schools can contribute significantly to children's psycho-social welfare.

Women's special role

By protecting their children and providing for their families, women play a key role in mitigating the effects of disaster. They are central to any initiatives aimed at reducing vulnerability. Their empowerment, physically, socially and economically, is fundamental to all disaster management strategies. Yet in many parts of the world, women care for their children with little assistance. Besides being frequently overworked and undernourished, they are also often culturally, socially and economically discriminated against. In the aftermath of a disaster, they may also be subjected to sexual abuse and physical violence as chaos and confusion prevails.

Reducing Vulnerability

Family and community life, so important for providing support to mothers and children, may be substantially disrupted by loss and damage to homes, property, food stocks and water supplies, as well as the destruction of crops and other means of making a livelihood in time of disaster. Communities disintegrate when families are forced to migrate to new areas or settle in temporary camps in order to survive. The tradition of solidarity and mutual support is probably stronger in the developing world than anywhere else, but the often meagre resources available limit the extent to which members of poor societies can help each other.

Many of UNICEF programmes, such as immunization, nutritional surveillance, control of diarrhoeal diseases, promotion of breastfeeding, provision of access to clean drinking water and sanitation, basic education and social mobilization, serve to reduce the special vulnerability of women and children. By doing so, these programmes make a major contribution to disaster prevention and preparedness.

The island of Madagascar was hit by two consecutive cyclones, Daisy and Geralda, at the beginning of 1994, causing major damage to four of the country's six provinces and putting thousands of women and children at risk. UNICEF acted promptly to provide emergency medical kits, essential drugs and oral rehydration salts to the health centres serving those made homeless by the cyclones. Also working with the Ministry of Health, UNICEF helped launch measles and tetanus immunization campaigns in three of the worst affected districts. In areas where the water table was polluted, water purification tablets were provided to families.

Increasing the capacity of communities

While natural disasters have a negative impact on the overall economies of countries, their life and death impact is felt at the local level. It is, therefore, within communities themselves -- where disasters hit -- that activities to raise levels of awareness, empowerment and organization are most needed.

Much can be learned from the communities themselves, which very often have built up effective strategies for mitigating the impact of disasters. The strength, effectiveness and immediacy of mutual support and community coping mechanisms are essential and fundamental elements of disaster mitigation. Disaster management policies focusing on assisting vulnerable communities to strengthen their traditional coping mechanisms and survival strategies are, therefore, the most effective.

While communities have the major role in protecting themselves and safeguarding their own survival, when natural disasters strike, assistance and support from governmental and non-governmental agencies, is also necessary. If such assistance is to be provided in an appropriate and timely fashion, training and capacity building is also required for government and aid workers.

UNICEF is committed to strengthening capacity at all levels - community, sub-national and national - through empowerment of individuals, especially women and children, and of groups and institutions within government and civic society in general. Only through such empowerment can people defend themselves against natural disasters and reduce the extent to which they are dependent on the support and goodwill of the international community. Capacity building enables citizens and governments to pursue their goals of sustainable development towards a better standard of living for their children. ■

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UNEP

New Links Made Between Natural and Man-made Disasters

An Introduction to Technical Committee Session 6

by the United Nations Environment Programme

TV coverage of disasters in recent months in America - the Northridge earthquake, the Bush fires, hurricanes and the Mid-West Floods have shown how natural disasters can play havoc with even the most advanced technological developments. As well as roads and buildings collapsing, a more insidious impact of the natural disasters has been the spilling of hazardous chemicals from burst pipelines and ruptured storage tanks. The result has been extensive environmental pollution to compound the problems of emergency humanitarian response.

Such complex events - where a natural event causes a technological accident such as a chemical spill - have been dubbed "Na-techs" by US researchers. And the relationship is not just one-way - there appears to also be links between technological releases and pollution causing changes in natural events such as storms and floods. The best known, albeit as yet unproved, example appears to be global warming.

Topical session 6 explores these vitally important linkages between the natural and technological world and attempts to address a trend that is rising in both frequency and magnitude. Using case studies from the USA, Russia, Japan, Thailand, Peru and Italy the session will discuss the theory of Na-techs and attempt to identify practical solutions that can be applied in the countries where the problem is most acute - the rapidly industrializing nations that also happen to be in disaster-prone areas of the world such as floodplains, low lying islands and earthquake belts.

Two trends are driving the relentless increase in Na-techs - untrammelled industrialization and population growth, especially in urban areas. As chemical plants and pipelines proliferate to drive a developing country's economy, the risks of Na-techs increase. When increased risk is added to more people in potential impact the consequence of any accidents also increases. As that growing development pushes onto marginal development land such as disaster-prone areas, the risks magnify yet again.

At the moment such industrialization - while seen as being vital for national development - is outstripping many nations' capacity to respond to the inevitable accidents. A recent UNEP survey found that many developing countries, many of whom are prone to natural disasters, have absolutely no capability to respond to chemical or technological accidents. One country admitted that during a fire in a chemical store they had no information on what to do, no training on how to do it and nothing to do it with. When the fire burned itself out, they simply washed the ash into an important lake, causing serious environmental pollution. This incident would have been seen as a relatively routine accident in a developed country. The impact of such an incident in a country unable to cope can be disastrous in itself. If such problems are combined with natural disasters such as earthquake, the results can be imagined.

Professor Enrico Quarantelli from the Disaster Research Center at the University of Delaware noted that "things are going to get worse, at least in the short run. We will be faced with more and worse disasters in the twenty-first century in cities in developing countries no matter how much disaster preparedness and personnel could improve in that time in any realistic sense .... the future will not be the past revisited; it will get worse".

Despite such gloomy predictions, it is important that countries who have the experience, information and equipment to combat such Na-techs make their resources available to the countries in need. Alain Clerc, Co-ordinator of the UN Centre for Urgent Environmental Assistance of UNEP said, "The fundamental need is for developed countries to show solidarity with the developing world and help them in a practical way. Such countries are facing increasing pressures to industrialize and it is our moral responsibility to help them to be able to cope with the inevitable effects of such industrialization. This includes assistance in emergencies such as Na-techs where the population will be struggling not only with the aftermath of a natural disaster but will also have to face the added complications of chemical or radiological contamination which could have serious human and environmental repercussions for many years."

The aim of such assistance is to improve the ability of countries to help themselves. The UN has an important role to play in catalyzing such action to bring those who need help into contact with those who can provide it, raising public and governmental awareness of the issues and improving national capacity to cope with disasters, irrespective of cause. ■

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Economic Aspects of Disaster Reduction for Sustainable Development

by the World Bank and the U.S. National Academy of Sciences

Summary

Natural disasters threaten sustainable economic development worldwide, representing a considerable challenge for the global community. Developing countries suffer the most in terms of human lives lost, critical human resources diminished, and economic losses as percentage of GNP. Economic losses have increased at least five-fold since the 1960s, due largely to the increasing concentration of populations and investments in vulnerable locations and inadequate investment in measures to reduce risk. Losses in the industrialized countries are also on the rise. In the U.S., for example, insurance payouts from natural disasters since 1990 have already more than quadrupled those accumulated for all of the 1980s, which quadrupled those of the previous decade.

Sustainable economic development is impossible to achieve if the international community in general, and each country in particular, cannot protect their development gains and invest in the future. Before a disaster, societies cope with potential economic losses in two principal ways: through

i) taking into account disaster risk in investment decisions, and
ii) sharing the risks/costs through insurance arrangements.

This technical session will bring together experts to provide an overview of the economics of disaster reduction for sustainable development, to discuss the primary issues and state of knowledge/experience in these two areas (decisionmaking for investments and insurance arrangements), and to identify opportunities and recommend directions for the remainder of the Decade to decision makers in the private and public sectors.

Product

A publication will be produced from the session which will include the resource papers and case studies, summary of the panel presentations and general discussion in Yokohama, as well as recommendations for decision-makers for the remainder of the Decade.

Format of the Session

Each of the following three panels will be approximately 1 hour. Resource papers will have been prepared for each panel and discussion/comment will be emphasized. ■

For further information please contact: the National Research Council, Washington, DC, Tel: (202) 334-1964, Fax: (202) 334-3362.

Technical Session:
Economic Aspects of Disaster Reduction for Sustainable Development

I. Overview/Introduction:

The implications for sustainable development of natural disaster losses -- highlighting the economic aspects -- will introduce the session.

- *"The impacts of natural disasters on national economies and the implications for the international development and disaster communities"**
  Mr. Romulo Caballeros, Economic Commission for Latin America and theCaribbean, Mexico; Mr. Ricardo Zapata-Marti, Economic Commission for Latin America and the Caribbean, Mexico

- *"The context of disasters and sustainable development: the case of a growing city in a developing country"**
  Mr. Atiq Rahman, Bangladesh Centre for Advanced Studies, Bangladesh

- *"The context of disasters and sustainable development: the case of an agricultural area in transition"**
  Mr. Thomas Odhiambo, The International Centre of Insect Physiology and Ecology, Kenya

- Panel comment and general discussion

II. Decision-making to reduce the potential losses in development investments:

For investment decisions to take into account disasters, risk considerations have to be included in economic analyses. Techniques and models available for evaluating disaster vulnerability, and for determining the benefits, costs, and effectiveness of mitigation options will be discussed.

- *"Disaster vulnerability and sustainable development: a general framework for assessing vulnerability"* *
  Ms. Mary Anderson, Collaborative for Development Action, USA**

- *"Advantages and limitations of benefit-cost analysis for evaluating investments in mitigation"**
  Mr. Randall A. Kramer, Duke University, USA

- *"Disaster-related activities of the Asian Development Bank: an economic perspective"**
  Mr. Gunter Hecker, Asian Development Bank, Philippines

- Panel comment and general discussion

III. Sharing the risks/costs through insurance arrangements:

Societies are facing increasing financial losses due to natural disasters, and have responded by adopting different approaches to underwriting of risks. Some of the central issues that the insurance industry and national governments face will be discussed. Different national experience in insurance will be discussed and recommendations for the future offered.

- *"The role of insurance in reducing losses from natural disasters"**
  Mr. Howard Kunreuther, University of Pennsylvania, USA"**

- *Country experiences*

Italy	Mr. Fabio Fegitz, Unione Italiana de Riassicurazione
Japan	to be announced
USA	to be announced
Caribbean	to be announced
SW Pacific	to be announced

- Panel comment and general discussion

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* Resource paper
** Not attending, but paper will be presented

ABSTRACTS

Economic Aspects of Disaster Reduction for Sustainable Development

Date:	Wednesday May 25, 1994 in the afternoon
Organized by:	The World Bank and the U.S. National Academy of Sciences

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Panel I: Overview/Introduction

"The impacts of natural disasters on national economies and the implications for the international development and disaster community"

Mr. Romulo Caballeros and Mr. Ricardo Zapata-Marti, UN Economic Commission for Latin America and the Caribbean, Mexico

Natural disasters have numerous impacts on national economies that can bear on economic performance, on the sustainability of countries' long-term development strategies and the conduct of economic policy. This paper will review these consequences using the experience of the Latin American and the Caribbean countries in the last twenty years as illustration and will highlight the implications for the international community's efforts to support disaster reduction.

To begin, the paper will provide a typology of disasters, including the successive phases after an event and their salient characteristics, and will outline some methodological insights regarding damage assessment. The linkages between the nature of the affected country, the dimension of the event, and its socio-economic consequences will be highlighted.

Next, the paper will describe methodology used to appraise the different types of disasters as well as to measure their effects in the national economy and society. The experience of carrying out disaster assessments and the measurement of their economic consequences will be summarized. Possible implications for the affected country's institutions given social and economic circumstances will also be presented.

The paper will examine the different consequences that disasters have over the long term, both in terms of development prospects and the most significant variables that affect economic performance, such as the balance of payments, production and income growth, public finance, etc. Special attention is paid to the institutional organization for confronting disasters -- prevention, emergency aid, damage control and reconstruction -- and how these actions affect national priorities and the country's ability to return to its development path. The role of the international donor community and external resources in these actions is specifically addressed.

Finally, conclusions and recommendations will be offered with respect to the international efforts needed to advance disaster prevention. Disaster prevention and mitigation must be part of a systematic approach that does not stop with emergency assistance or aid in the reconstruction process but goes beyond, linking development potential and sustainability to these actions.

Cases Studies

The intent of the cases is to provide common and detailed experience in which to ground the technical session discussion. The cases will construct a context in which the methodological issues and practical application of the topics (vulnerability assessments, benefit-cost analysis, and insurance) can be considered in more detail. The complexity of the settings might include cultural, economic, social, and political factors, as well as specific disaster scenarios.

"The context of disasters and sustainable development: the case of a growing city in a developing country"

Mr. Atiq Rahman, Bangladesh Centre for Advanced Studies, Bangladesh

Characteristics of a rapidly growing urban center, such as Dhaka, Bangladesh, will be outlined, looking at how they interact with hazards. The scenario may include: a large inventory of vulnerable constructions; extensive and interdependent infrastructure networks whose failure could cause a harmful chain of events; a growing proportion of the city which is poor living in precarious sites (hills, landslide and flood areas) with few or no public amenities; a significant portion of the economic infrastructure for the country, the impact on which would have important implications for the nation's productivity, debt, employment, and GDP; the affected area comprises overlapping or multiple jurisdictions requiring considerable coordination of actors in pre-disaster planning as well as emergency response.

"The context of disasters and sustainable development: the case of an agricultural area in transition"

Mr. Thomas Odhiambo, The International Centre of Insect Physiology and Ecology, Kenya

The characteristics of an agricultural area in transition will be outlined. The scenario may include: An arid zone which is being incorporated into the larger national and international economy and possible consequences such as shifting demands from external markets resulting in the diversion of credit and marketing facilities away from the traditional farmer, erosion of traditional land use and herd management systems; a shrinking land base, leading to overfarming and erosion (farmers more vulnerable to drought) and/or population movements into hazardous locations and economic relationships; traditional mechanisms for absorbing and sharing losses being eroded away, while not yet having been replaced by new mechanisms such as accumulated wealth and response capacities of more industrialized societies.

Panel II: Decisionmaking to reduce the potential losses in development investments

"Disaster vulnerability and sustainable development: a general framework for assessing vulnerability"

Ms. Mary Anderson, Collaborative for Development Action, USA

The purpose of the paper is to suggest a comprehensive, yet usable, framework for understanding vulnerability that can be used by communities to assess their own risk and to decide on which courses of action to take to reduce their vulnerability, by planners of disaster mitigation and prevention efforts, by educators to improve the public's understanding of disaster proneness and prevention, and by governmental and international bodies to discuss and agree on joint responsibilities and cooperative efforts to reduce vulnerability.

The paper reviews the way in which our understanding of vulnerability has shifted and enlarged over time. The interrelationships between economic development efforts of the past, trends in vulnerability, and the current concern with defining and achieving sustainable development are treated. Five critical characteristics of vulnerability are identified, and a framework for vulnerability assessment is presented which reflects the characteristics, factors, and relationships discussed in the paper.

"Advantages and limitations of benefit-cost analysis for evaluating investments in mitigation"

Mr. Randall A. Kramer, School of the Environment, Duke University, USA

Anticipating and reducing the effects of natural disasters can have positive impacts on local, regional, and national economies. By incorporating information about natural disasters and possible mitigation strategies into the planning process, the prospects for satisfactory outcome of public investments in development projects can be enhanced. Although rarely done, disaster risk information can be used throughout the project planning cycle. It can be particularly useful in benefit-cost analysis (BCA) to consider the economic feasibility of different projects or different mitigation components of projects. As usually practiced, BCA fails to account for the fact that future project benefits may be highly uncertain if prone to natural disaster impacts. This is particularly true in developing countries where a high proportion of natural disasters occur.

Several methods have been proposed for incorporating disaster information into BCA. Limited information approaches include sensitivity analysis, discount rate adjustments, cutoff periods, and several game theory methods. These limited information approaches allow recognition of the impacts natural disasters can have on project feasibility, but are crude in their ability to convey useful information to decision makers. If sufficient information is available to estimate the probability distribution of a project's net benefits stream, several other approaches are possible. In particular, one can use mean-variance analysis, stochastic dominance analysis and safety-first analysis. To illustrate the use of risk-modified, benefit-cost analysis, an example will be presented for an agricultural development project in the Caribbean.

This paper will also examine how the incorporation of natural disaster risk into BCA may alter investment decisions, and suggest means to modify project design. It will examine how decision makers at different levels may use modified BCA to guide investment decisions and tradeoffs. It will also explore distributional issues including how disaster risk might affect the equity outcome of projects. Finally the paper will discuss implications for sustainable development.

"Disaster-related activities of the Asian Development Bank: an economic perspective"

Mr. Gunter Hecker, Asian Development Bank, Philippines

This paper will introduce disasters in the Asia-Pacific region and the Asian Development Bank's (ADB) increasing role in disaster response, emphasizing mitigation, fostering of self-reliance, institutional strengthening, and donor coordination.

The paper will present some economic evaluations of ADB's disaster-related projects and will discuss the future role of development banks in this area, including issues such as the evaluation of benefits, institutional flexibility, the staged approach and staff training for disaster-related projects.

Panel III: Sharing the risks/costs through insurance arrangements

"The role of insurance in reducing losses from natural disasters"

Mr. Howard Kunreuther, Risk Management and Decision Processing Center, University of Pennsylvania, USA

This paper focuses on the potential role that insurance can play in reducing losses from natural disasters while at the same time aiding the financial recovery of homeowners suffering property damage from a severe disaster. After reviewing why insurance is ideally suited to play both of these roles in theory, the paper focuses on reasons why few individuals purchase coverage voluntarily and adopt cost-effective mitigation measures.

The paper then focuses on the concerns that the insurance industry has had on the impact of a catastrophic disaster on their solvency. Particular attention is given to the conditions of insurability and the circumstances which may make it difficult for the industry to offer coverage against specific hazards.

A set of goals and objectives are delineated for a Natural Hazards program with some emphasis on loss prevention and mitigation. Based on these objectives the paper compares a private system of insurance with a program that relies on the federal government for providing reinsurance protection against catastrophic losses at a price. In particular, the following issues are addressed in relation to both these programs: The type of risk information needed to set premiums and encourage mitigation measures; the role of regulations (e.g., building codes) and requirements (e.g., purchase of insurance as a condition for a mortgage) in conjunction with insurance; the ability of private reinsurance to cover catastrophic losses and the role that government reinsurance can play in reducing premiums;

the impact of the programs on federal disaster relief and the need for special assistance to low income individuals; the implementation costs associated with some type of joint private-public insurance program.

"Country experience"

A panel of experts from the private insurance sector will present and discuss different country experience of insurance arrangements to share the cost and risk from natural disasters.

Italy	Mr. Fabio Fegitz, Unione Italiana de Riassicurazione
Japan	to be announced
USA	Mr. Frank Nutter, Reinsurance Association of America**
Caribbean	to be announced
SW Pacific	to be announced

World Health Organization
Organisation mondiale de la Santé

United Nations
World Conference on
Natural Disaster Reduction

Yokohama, Japan
23-27 May 1994

Disaster Management: An Opportunity for Change?

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*N*o country is safe from the impact of disasters and complex emergencies, which are becoming more frequent and more severe. Today's most typical strategy to deal with disasters is fragmented and crisis-oriented: scores of national and international agencies, governments, companies, voluntary groups and journalists converge upon the scene of disaster to provide short-term relief and recovery in an uncoordinated manner.

*T*his current approach to disasters is not sustainable. The scenario repeats itself endlessly, creating a culture of dependency and a vicious cycle of underdevelopment in poor, disaster-stricken areas. It drains money and manpower from external organizations which provide assistance, upsets fragile ecosystems, and triggers mass movements of people.

*H*ealth professionals have every interest in changing today's inefficient approach to disasters. The health sector plays a key role during disasters, which unexpectedly cause large numbers of deaths, injuries, disabilities and illness. The health sector also plays an important role in development: public health status is a key indicator in determining the level of sustainable development.

***C*an the world adopt a more practical approach that integrates disaster management into activities which contribute to sustainable development?** An upcoming United Nations conference plans to focus on the links between disaster management and sustainable development. The conference may provide the first opportunity to shift today's focus on short-term emergency relief towards new, more rational approaches. **WHO encourages health professionals to attend the UN World Conference on Natural Disaster Reduction so that the health sector has a voice in shaping new strategies to deal with disasters.**

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The Health Sector and the World Conference 4

A WHO contribution to the International Decade for Natural Disaster Reduction

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Major emergencies on the rise

Hardly a single day passes without news about a natural disaster, complex emergency or technological accident happening in some part of the world. From Mahārāshtra to Mississippi, disasters wreak havoc in developing and developed countries. Specialists say that no country is safe from disasters.

These emergencies are closely linked to many of the major issues of the 90s: population displacement, environmental degradation, economic survival, public health services, and cultural losses. And as we approach the 21st century, rapid population growth, ecological damage, rapid industrialization and socioeconomic imbalances make the chances of disasters around the world higher than ever -- in turn, fostering a cycle of more migration, economic dislocation, environmental destruction and needless loss of lives and property.

The impact of disasters is on the rise. The economic damages due to natural disasters alone have tripled in the last thirty years. In 1992, global economic losses for disasters totalled $60 billion. Early estimates of economic losses from the Los Angeles earthquake ranged from $15-30 billion. Deaths associated with natural disasters have increased 50 per cent each decade since the 1950s, according to the World Bank, with 3 million deaths over the past two decades and 162 000 in 1991 alone.

In addition, the end of the Cold War has led to a rise in "complex" emergencies, in which humanitarian assistance is "bound by intense levels of political consideration."[1] The United Nations Department of Humanitarian Affairs has registered a 35% rise in the number of complex emergencies between 1991 and 1993.

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[1] *UN Disaster Management Training Programme Manual, 1991.*

Changing today's piecemeal disaster management style

The rising number of tragic disasters and complex emergency situations has led to an outpouring of media attention, public sympathy and financial support. Since the 1980s, money and manpower for disaster relief has soared, yet we are no closer than before to bridging the humanitarian gap. Reliance on short-term relief policies cannot continue indefinitely. Money spent on relief seems to be at the expense of development; funding for development programmes has declined over the last decade.

Meanwhile, there is no end in sight to the number of demands for humanitarian assistance. As soon as one crisis abates, another one flares up. While four or five major emergencies manage to attract substantial amounts of assistance for some time, other equally tragic complex emergency situations are ignored, bypassed or forgotten. And with the recent rise in complex emergencies, some label natural disaster victims the "silent majority."

Donor countries are beginning to realize that, under the current circumstances, they will never be able to supply enough money and manpower to react to disasters around the world. At the same time, they are increasingly faced with economic constraints of their own. The result has been that countries are now showing signs of "donor fatigue."

Consequently, some changes in strategy are beginning to appear: there has been a great deal of discussion recently among donors and UN agencies dealing with humanitarian assistance about a "relief to development continuum." At the request of the UN Secretary General, UN agencies are now defining the relationship between relief and development, and developing new policies and procedures. In disaster-prone countries, a growing number of people are going even further, asking their own governments as well as UN agencies and donors to move from a strategy of crisis management, to a strategy that emphasizes prevention, mitigation and preparedness for disasters.[2]

In summary, then, while the predominant approach to disasters is still piecemeal, short-term and ad-hoc, there are those who are beginning to consider a pro-active, risk reduction approach.

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[2] *See, for example, the summary of the Oxford Seminar on Disaster Management, October 1993, in which 25 officials from disaster-prone developing countries discussed how to communicate the acute needs for preparedness planning to policy level officials.*

Extracts: World Health Assembly Resolution 46.6, May 1993

Emergency and Humanitarian Relief Operations

"Recalling resolutions... on emergency relief operations, on the International Decade for Natural Disaster Reduction on drought, floods and famine in certain countries;
... Deeply concerned at the alarming increase in disasters... and the effect such disasters have on the health and well-being of the population and health services of Member States;
... Recognizing that it is a constitutional function of WHO to provide health services and facilities to special groups affected by disasters at the request of Member States or of the United Nations;...

REQUESTS the Director-General: to support and guide Member States in strengthening capabilities to prepare for emergencies and to provide humanitarian assistance in the health sector;
... to ensure that WHO fulfils its responsibility for coordinating the health aspects of disaster preparedness and response within the UN system...; ... to strengthen WHO's capacity for early warning of disasters....".

Integrating Disaster Management into Sustainable Development

Despite the major impact that major emergencies have on our world today, no comprehensive policy and strategy is in place to guide the world's approach to disasters. Such a strategy should be based on prevention, mitigation, preparedness, relief and recovery that is fully integrated in sustainable development.

WHO is working to ensure that any new approaches to disaster management are firmly integrated into sustainable development. Disasters do not exist in a vacuum; most frequently, they interrupt a normal process of development. For this reason, WHO prefers to think beyond a relief to development continuum. WHO sees disaster management as a cycle of activities in which emergency prevention, mitigation and preparedness are integrated into sustainable development programmes. Many prevention, mitigation and preparedness measures can be integrated into existing development plans at little or no extra cost, and they go a long way towards building self-reliance in the face of disasters. In addition, these programmes -- if carefully planned and implemented -- should lead to quick, efficient humanitarian action during disasters, in the event that outside assistance is needed.

Similarly, relief, recovery and rehabilitation efforts should be designed to complement and strengthen the coping capacity of the stricken community, enabling it to move rapidly back to the development phase, building a stronger and safer society than before.

In fact, sustainable development is not possible without paying attention to the global problem of disasters. Sustainable development has been defined as "improving the quality of human life while living within the carrying capacity of supporting ecosystems."[3] Disasters can heavily damage ecosystems, wipe away homes, offices, lives and change the fate of a community for decades. How can we improve the quality of human life without taking into account the human and economic suffering caused by disasters?

Health Sector Has an Important Role

Emergency management and sustainable development are intersectoral by nature. To varying degrees, many parts of society influence development and are influenced by it. Similarly, when a disaster strikes a community, it is the entire community that feels the impact and that has a role in response and recovery.

The role of the health sector in disasters is particularly important. The impact of major emergencies expresses itself most often in terms of morbidity, mortality and, in some cases, long-term degradation of the health status of vulnerable groups stricken by disasters. Disasters frequently trigger unexpectedly high numbers of deaths, disabilities, injuries and disease; an increase in psychological and social behavioural disorders; food shortages and nutritional deficiencies; large population displacements; destruction of local health infrastructure; and disruption of routine health services.

Health professionals, therefore, have every interest in taking a prominent role in designing new approaches that link disaster management to sustainable development, and integrating these new approaches in the on-going work of the health sector.

[3] *From "Caring for the Earth", 1991, WWF, UNEP, IUCN.*

An Opportunity to Adjust Global Strategies to Disasters

A good vehicle to begin shifting in global policies on emergency management could be the UN **World Conference on Natural Disaster Reduction (Yokohama, Japan from 23 to 27 May 1994).** Many of those involved in the conference preparations strongly advocate an integrated approach to disaster management, focused on sustainable development, with better cooperation between the public sector, the private sector, voluntary groups and the public at large.

The conference provides a forum for policy-makers, managers and experts to share the latest examples of integrated, cost-efficient disaster reduction programmes. The conference will also provide a forum for decision-makers to shape new policies about how they deal with natural hazards and disasters.

If national governments and international organizations subsequently enlarge the scope of new natural disaster policies to encompass man-made disasters as well, it could lead to a real shift in the way the world considers and handles disasters.

The Health Sector and the World Conference on Natural Disaster Reduction

To help shape a new strategic approach to disaster management, WHO, through its Division of Emergency and Humanitarian Action, has organized and sponsored one of the ***main committee sessions*** of the conference. The session is entitled, "From Disaster Management to Sustainable Development: How the public sector, private sector and voluntary organizations can work together."

WHO's Regional Office for the Americas is contributing to the conference by organizing a main committee session on regional approaches to disasters. In Africa, WHO's Pan-African Centre for Emergency Preparedness and Response has contributed greatly to the creation of a common African position on disaster management issues.

WHO strongly encourages health professionals in countries around the world to attend the World Conference. In addition to the sessions and issues outlined above, health professionals may wish to participate in the ***poster session on health*** (organized by UNESCO). There are seven poster sessions on different topics. The poster session on health will take place on Wednesday 25 May 1994.

Ministry of Health officials and leaders of national nongovernmental or private sector groups with an interest in health issues are encouraged to join **official national delegations** to the conference, which speak during plenary sessions throughout the week. ■

For more information, contact:

World Health Organization
Division of Emergency and Humanitarian Action
Emergency Preparedness and Planning Programme
20 avenue Appia, 1211 Geneva 27, Switzerland
Fax: 41 22 788 2036
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IDNDR Secretariat, Palais des Nations
1211 Geneva 10, Switzerland
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Phone: 41 22 798 6894

Hazard Resistant Structures

An Introduction to Technical Committee Session B

by Sir James Lighthill

Preparedness - the preparedness of entire communities - is the key to ensuring that grave natural hazards do not become massive natural disasters.

A vital part of preparedness is the achievement of Hazard Resistant Structures - possible (as the Session will explain) at astonishingly low cost.

Yet public awareness of risk is equally essential to preparedness, being needed:

- to ensure proper use of such structures to protect life and valued property;
- to promote prompt response to disaster warnings, and most important of all;
- to stimulate everybody in a community to demand, and to contribute to, the achievement of Hazard Resistant Structures.

National policymakers have vital roles in the necessary promotion of public awareness, which has to extend to all users of buildings as well as to all those involved with the construction industry and with regulatory bodies.

Prearranged contributions expanding on these general issues are as follows:

Professor Jamilur R. Choudhury will describe the development, construction and use of Cyclone Shelters resistant to storm-surge inundation of low-lying areas in Bangladesh, which, given proper training in their use, are able to protect people, along with many of their most valued possessions, after a warning has been received. (Note: besides such an emergency role, the shelters are suited also to a wide variety of community uses).

Professor Alan G. Davenport will survey design, construction, quality-assurance and maintenance problems regarding structures resistant to extreme-wind loads and/or to earthquake loads. Vital contributions towards improvement of hazard resistance can be made by a structure's user, owner, investor, insurer and builder; as well as by individual materials suppliers, design professionals, building officials, code writers and inspectors.

Mr. Stuart Mustow and Dr. Scott Steedman will outline problems standing in the way of proper implementation of those high-quality building codes which exist in most counties, and will illustrate from case studies how these problems can be overcome through action by national policymakers - including above all the promotion of better public awareness.

Professor A.S. Anand Arya's presentation, about protection of non-engineered housing from natural hazards, will fuse together knowledge derived from age-old indigenous approaches with the results of research carried out in the last few decades on the achievement of disaster protection for such buildings. The methods described, being of an incremental nature, are found to be socially acceptable, economically feasible and readily absorbed into local construction methodologies.

Professor Alberto A. Giesecke will outline methods for reconditioning existing adobe housing so as to mitigate effects of earthquakes. The emphasis is on simple, low-cost procedures for such reconditioning which take into account size, shape and construction characteristics (and soil types) and are aimed at delaying collapse sufficiently to save very many lives by giving time for escape.

The last prearranged contribution will be given by the Malaysian Rubber Producer's Research Association on the promise of modern techniques for use of a new and highly effective type of latex base-isolators, initially for engineered structures but capable of development for producing rubber bearings for earthquake protection of low-cost housing.

Finally, the general discussion will be initiated by an important contribution from the host country, arranged by Japan's IDNDR Promotion Office.

In this general discussion, lively responses to the prearranged contributions - as well as valuable new contributions from the floor - are warmly invited.

All those attending Technical Committee Session B are asked to help in attaining the Session's main goal: in-depth recognition of how public awareness - that spreads through entire communities - can be used in the achievement (and in the good use made) of Hazard Resistant Structures. ■

For additional information, contact: Sir James Lighthill, Chairman, International Council of Scientific Unions (ICSU), University College London Telepone: (44 71) 383 5519, Fax: (44 71) 387 7050.

After Earthquake, Schools Reopen in Kyrgyzstan

by the United Nations Development Programme

In May and August of 1992, two powerful earthquakes struck a remote and mountainous part of Kyrgyzstan, destroying 11,000 homes and damaging more than 18,000 others. Along with the destruction of schools and hospitals, bridges, roads and communications facilities were knocked out, making relief efforts in this hard-to-reach area all the more difficult. Hardest hit was Toktogul County, located in the sparsely populated region of Jalabad.

Aside from the initial shock, the damage caused by the earthquakes had serious after-effects. For one thing, Toktogul lost four schools, which meant that more than 1,000 Kyrgyz children had no place to learn. School tents were st up, but the winter that followed was brutally cold, with temperatures dropping as low as -25 degrees centigrade. When children began falling sick because of the miserable conditions, three of the tent schools were closed, and the children sent home.

Photo: Rolf-Nicolay Aspestrand

Kyrgyz Schoolchildren

After surveying the damage, Ercan Murat, the UNDP resident representative in Kyrgyzstan, sought donors who would work with UNDP in constructing two new schools in the village of Akdjar - schools that would be more earthquake resistant and ready by the start of the 1993-1994 school year. Mr. Murat found willing partners in the Norwegian Agency for International Development and the Danish International Development Agency, which contributed US$ 560,000 and $107,000, respectively. UNDP donated $417,000.

With assistance from local workers, teachers and children, construction got under way last summer. In a matter of 82 days, the two schools, fully equipped with textbook and other supplies, opened their doors to eager pupils and teachers - just in time for the new school years ■

For additional information, contact: Public Information Office, United Nations Development Programme, New York, New York Telepone: (212) 906 5000. Fax: (212) 906 5364.

UNEP

Environmental Emergencies: An Idea whose Time has come?

ALAIN CLERC

Coordinator UNCUEA
United Nations Centre for
Urgent Environmental Assistance

Recent events in India have demonstrated the appalling human suffering caused by natural disasters. In comparison, the impact of so-called man-made accidents involving toxic chemicals pale in significance. Research at the Center for Risk Management in Washington, USA has shown how natural disasters causing 25 or more deaths occur four times more frequently that major industrial accidents causing 5 or more deaths. Natural disasters also took over 150 times as many lives each year and claimed over 30 times as many lives per event.

Despite such broad statistics it is vital we don't ignore the chemical accidents that cause environmental damage; not just for the environment's sake but because the health of the environment will have a direct bearing on our health. Pollution doesn't simply cause fish to die or improve the colours of a sunset – by degrading the environment the pollution can kill and injure people, not just at the time of the accident but for decades and even generations to come. The victims of mercury poisoning at Minimata in Japan suffer the horrendous effects of pollution years after the event. Only recently, there have been reports in the Press about possible long term carcinogenic effects of the infamous Seveso dioxin accident in 1976.

United Nations - a role to play

Unfortunately it seems it always takes a disaster to improve our prevention, preparedness and response capabilities. Bhopal where thousands died and an unknown number still suffer, the Guadalajara explosion which killed over 250 people and ripped apart the Mexican town, Schweizerhalle which poisoned Europe's premier river – such major incidents are the milestones in the progression of emergency management. During the 1980s, when technological accidents hit the headlines more than any time before, many developed countries introduced programmes to improve their own ability to respond. As ever, developing countries were left behind with industrialization increasing and accidents happening ever more frequently. Unfortunately it seems the improvements in response capacity exhibited in the developed world simply didn't happen in many other countries in the world.

It was in this atmosphere of increasing risk and larger disasters that UNCUEA was created; like every other initiative it needed a string of disasters for countries to see the need. UNCUEA – the United Nations Centre for Urgent Environmental Assistance – was the brainchild of former Soviet leader Michael Gorbatchev. In 1988, just two years after Chernobyl, he suggested that the UN General Assembly set up a unit "to send international groups of experts without delay to areas with a badly deteriorating environment". It was his response to the growing list of calamities that had caused serious environmental damage.

A specialist unit was set up within the UN Environment Programme in 1992 with the remit to investigate the problems of emergencies that damage the environment. The ideal would be to help countries to help themselves so that a UN service is not needed, but until that can be achieved, a "safety net" can be provided that offers advice and assistance when national response organizations are overwhelmed, either by the size of an accident or simply because they don't have the resources to cope adequately.

The problems identified

Since then the idea has been honed and refined to the stage where today UNCUEA is about to present its findings to the UNEP Governmental Advisory Meeting in Geneva in November 1993. To identify the best way to improve the existing international capability to respond to such emergencies, the small staff of UNCUEA, together with highly qualified consultants, looked at past accidents that had a significant environmental impact, assessed the existing international response system and, most importantly, asked many developing countries and countries in economic transition what they actually NEED from the UN. The results have not yet been published but general findings include:

- there is inadequate capacity in many countries to respond because of a lack of information, training or equipment.
- there is a need for rapid advice and information on chemicals and response problems which can be given by telephone in the early phases of response.
- there is a need for an organization to act as broker to place countries facing the emergency in contact with experts around the world.
- there is a need to strengthen existing programmes in prevention and preparedness.

Such inadequacies mean that an accident that would be seen as "minor" to a well trained, well equipped country becomes a "major" emergency in developing countries, many of which said they have **no capability to respond to chemical accidents at all.** Such information came from countries who have factories, manufacturing plants, petrochemical plants, fertilizer and pesticide stores – but still have no realistic ability to cope when something goes wrong. One country said that during a fire in chemical store they had no information on what to do, no training on how to do it and nothing to do it with. When the fire burnt itself out they simply washed the ash into a lake, seriously polluting the ecosystem. But as they said, in the circumstances, what else could they do!. This doesn't mean that the developed world have solved all the problems of technological accidents – the massive pollution of the Rhine from the chemical fire at Schweizerhalle shows that accidents can happen in countries with the best training, the best equipment and the best information. The situation is far from perfect in the developed countries but much, much worse in the developing world.

The Way Forward

If even the most developed nations can't prevent or even respond well to many chemical accidents, on the surface it would seem that there is little hope for developing countries. But it seems that simple things can make a big difference – such as rapid access to information on chemicals in a form that can be practically used by responders, training in how to tackle chemical emergencies and access to equipment to contain the spill without endangering themselves. They won't make the problem go away but at least they would improve the odds for success.

There are already programmes in Prevention and Preparedness such as the APELL (Awareness and Preparedness for Emergencies at the Local Level) programme and the ILO Major Hazard Control manual and Code of Practice. But that is where the UN support stops – at the moment. If the UNEP Governmental Advisory Meeting take note of the consultants reports and the proposals to shift UNCUEA from its experimental basis to become an active unit, then we hope to establish a 24 hour telephone advice service, in close collaboration with DHA-Geneva, providing rapid access to practical information from existing chemical databases so that countries needing advice can simply call for help. If they need specialist advice the UNCUEA would be able to connect them to the best experts around the world and if required arrange for experts to study a site for assessment and advise. If required, the UNCUEA team could arrange for specialist equipment and expertise to be sent to the site. Such international support illustrates the practical solidarity that is necessarily, albeit gradually, developing between the North and South, both within the UN system and through the activities of international organizations such as the ICDO. While such assistance is likely to be of most use in the latter phases of response and recovery, there is also the potential for support in a time of imminent threat – when an accident is expected but there is still time to ask for advice before it is too late. Such advice was provided on several occasions during the experimental phase.

Emergency In Montenegro

In November 1992 a call for help was received from the government of Montenegro. Heavy rains and floods had damaged a dyke holding back 3.5 million tonnes of heavy metals and carcinogens from lead and zinc mines. There was a real danger that a breach would cause massive pollution of the Sara and Danube rivers. In collaboration with DHA-Geneva an assessment team flew to the site. The UNCUEA specialists collected samples of water, waste and soil and provided expert analysis to identify the pollution and the level of toxicity. The information was shared with the national authorities and relevant international organizations to that decisions could be based on scientific fact. Recommendations were made to urgently divert the flood waters so that the dyke could be reinforced. With donations from several EEC countries the dyke was repaired and the danger passed.

It seems that there is no shortage of potential work for such a centre; there has been strong support expressed from many developing countries – the potential "clients" – and developed countries. UNCUEA has established a register of international donors who have agreed to make their response capability available should the need arise. Canada, the Czech Republic, Denmark, Egypt, Finland, Greece, India, Iran, Japan, the Netherlands, New Zealand, Nigeria, Norway, Portugal, Rumania, Russian Federation, Senegal, Singapore, Sweden, Switzerland, Tunisia, United Kingdom, United States and Zimbabwe all completed a questionnaire of national capabilities that could be placed at UNCUEA's disposal.

A Grim Forecast

At the moment industrialization is far outstripping many nations' capacity to respond, and its a trend that governments, international organizations and especially industry themselves need to reflect upon. Professor Enrico Quarantelli from the Disaster Research Center at the University of Delaware notes that *things are going to get worse, at least in the short run. We will be faced with more and worse disasters in the twenty-first century in cities in developing countries no matter how much disaster preparedness and personnel could improve in that time in any realistic sense... the future will not be the past revisited, it will get worse.*

The Creeping Disaster

While public concern focuses on the thankfully rare technological disaster such as Bhopal, the professionals must appreciate the problems of the smaller chemical accidents which, if ignored or mishandled, endanger human health and environment at a more insidious but equally devastating way. At the moment many professionals in developing countries and countries in economic transition have to face such emergencies inadequately trained, inadequately equipped and with little specialist knowledge. It is up to the international community and industry to improve their chances of coping – in the short term for the countries but in the long term for the future health of the planet. Natural disasters might cause more damage and make more headlines, but technological emergencies – the creeping disaster – can and must be tackled by us all.

WMO/OMM

Getting More for Less: How Early Warning Systems Help to Reduce Natural Disasters

by the World Meteorological Organization (WMO)

Right at this very moment, somewhere in the world the ground is shaking violently. In other places, wind and water are hurling around in the skies, devastating storms are wiping out roads, bridges and large areas of land, causing havoc and destruction all around. In complete contrast, there are a number of places in other parts of the globe where nothing seems to be moving. Everything is still, because the deadhand of drought has imposed an all-embracing curfew.

When such events occur where people live and work, there will always be disasters waiting to happen. In fact, hardly a week goes by without the media reporting the occurrence of one or more natural disasters-typhoons, floods, volcanic eruptions, freezing cold and other extreme weather events. Some of them cause thousands of deaths and millions of dollars worth of damage. But many smaller disasters, which can be just as calamitous for the people involved, go unreported and the victims receive no help whatsoever from the outside world.

Although history contains accounts of some occasions where foresight and planning had averted a disaster, on the whole rather fatalistic attitudes have prevailed and therefore many lives were lost. But as we reach the end of the 20th century things are very different. Science and its applications through modern technology offer the means of avoiding disasters or reducing their effects. Disasters need not continue to be the scourge that they were over the centuries. That is, if attitudes can be changed and science could be used to curtail their destructive powers.

To bring about this change, the International Decade for Natural Disaster Reduction (IDNDR) was launched on 1 January 1990. The Decade has a number of objectives, but for many and especially for the World Meteorological Organization (WMO) and its Members, the most important challenge is to alter the attitudes of governments from concentrating solely on post disaster relief to a focus on pre-disaster preparedness. All the evidence shows that for every dollar spent in being prepared, you need to spend one hundred dollars or more to make good after the event. Nowhere are these very favourable cost/benefit ratios more obvious than in the applications of meteorology and hydrology. For example, the cost of constructing disaster resistant buildings adds only 2 to 12 per cent on average to the normal costs, which ought to be set against much larger replacement costs. Similarly, studies of forecasting and warning systems demonstrate that cost/benefit ratios of 1 to 10 or 1 to 15 are common. With the costs of disasters continuing to mount, countries which have invested in proficient integrated disaster management systems such as Japan, Iceland and the United States, see ready returns on their investments.

Where such forecasting and warning systems are installed as part of disaster-management programmes, the evidence shows that more lives can be saved and damage can be drastically reduced. In Japan, for example, since the introduction of these systems for meteorology and hydrology in the 1960s, the annual loss of life from typhoons, floods, landslides and related events has been reduced enormously. When Hurricane Gilbert hit Jamaica on 12 September 1988, it was one of the most severe storms in the island's history. But Gilbert had been tracked by the Regional Hurricane Centre in Miami in the United States and by the national Meteorological Services in the area. Gilbert's path waspredicted, timely warnings were issued and counter measures were taken by civil defence authorities. The result was a much lower death toll than when a similar hurricane struck in 1951.

Disasters of the fluid Earth are the major concern of WMO, together with those where meteorology and hydrology play a part in the processes involved. Forest fires, insect plagues and similar infestations fall under the latter category, but WMO also handles seismological data and tsunami warnings. Common to most if not all of these phenomena is the need to collect observations on a continuous basis and to process these data, in order to provide forecasts and to issue warnings where they are needed.

For meteorology, these are the responsibilities of the national Meteorological Services and the National Meteorological Centres (see diagram) whose activities are integrated globally in the World Weather Watch (WWW). WWW was established in 1963 as the global system for collection, exchange and processing of weather data and for the exchange of weather information. Each day, over 20,000 weather observations are made at the ground surface, on ships and in the air. These are transmitted as some 15 million data characters by high speed telecommunications links through 3 world, 31 regional and 161 national centres with 2,000 weather charts for the preparation of weather analyses and forecasts.

Thanks to the wider availability of up-to-date technologies and the application of research results, the annual death toll resulting from tropical cyclones and tornadoes has decreased over the years. Fifteen years ago, there were advanced warnings for only 45% of tornadoes. Now the figure is 89 per cent. In the USA, for example, during a ten year period from 1950 to 1959, 1400 people lost their lives from tornadoes; over the same period ending in 1992, the death toll dropped to 521. A similar trend applies to hurricanes and tropical cylones. These developments are a direct result of improvements in: science and technology of detection and prevention; advancements in communications technologies; increased cooperation between officials, non-governmental organizations and the media, and the planning and implementation of pre-disaster activities and organized evacuations.

Unfortunately, according to WMO, many parts of the developing world are less well protected by forecasting and warning systems than they should be. During the rest of the Decade, efforts will be needed to extend to many countries the meteorological and hydrological systems that currently protect the citizens living in the industrialized world. The Secretary-General of WMO, Prof. G.O.P. Obasi, warns that "unless countries channel more of their resources towards strengthening and improving their early warning systems, the Decade's lofty goal of attaining a safer world for mankind in the 21st century will remain but a dream." ■

For more information, please contact: Information and Public Affairs Office, World Meteorological Organization (WMO), Geneva, Switzerland Telephone:(+41 22) 730-8315 Telefax: (+41 22) 734 2326 Telex: 414199 OMM CH

The Federation and IDNDR

by the International Federation of Red Cross and Red Crescent Societies

The International Federation of Red Cross and Red Crescent Societies adopted a decision at its General Assembly in 1989, reaffirming the support to be given by the Federation, in co-operation with the appropriate organisations of the United Nations System, to achieving the objectives of the *International Decade for Natural Disaster Reduction*. It urged National Societies to take an active role in the national and regional committees for IDNDR which were created to reduce, through adequate preparedness and prevention measures, the consequences of natural disasters.

The essential functions of the International Federation of Red Cross and Red Crescent Societies (at present 161 member National Societies) include:

- Assisting National Societies in their disaster relief preparedness, in the organisation of their relief actions and in the relief operations themselves, and;
- Organising, co-ordinating and directing international relief actions in accordance with the *Principles and Rules for Red Cross and Red Crescent Disaster Relief*.

Many of the Federation's activities, therefore, fall naturally within the remit of IDNDR. The Federation is encouraging its members to participate, at the national level, in IDNDR Committees. At the international level, the Federation is promoting the concept of disaster reduction through vulnerability reduction. This is done through its regular publications and through planned joint publications with leading academic and disaster response agencies.

In November 1990, the Federation organised a major consultancy on the health aspects of IDNDR, which was attended by many National Societies as well as the IDNDR Secretariat and WHO. A further contribution to IDNDR was in April 1991 when the Federation played a key role in formulating the *Tampere Declaration on Disaster Communications* at an international conference held in Tampere, Finland. This declaration paves the way for the freer use of telecommunications equipment in times of disaster so as to enhance the effectiveness of disaster relief.

In May 1993, the International Federation of Red Cross and Red Crescent Societies, in co-operation with the Centre for the Research on the Epidemiology of Disasters, produced *The World Disasters Report*, a major new reference text on disasters. This publication details long-term trends in disasters, reviews the previous year in international disaster preparedness and response, and provides in-depth commentary on the critical issues facing the disaster response community today. The report will be an annual publication from this year on, available in English, Spanish, French and Arabic, and fills an obvious gap in disaster-related literature. The report is available from the Federation Secretariat in Geneva.

Vulnerable Communities

All disasters require the convergence of two sets of factors: those, associated with natural and other hazards, which cause an extraordinary stress upon a population, and those factors which render that population susceptible to that stress.

Without vulnerable people there can be no disasters. Understanding why people are vulnerable, what increases their vulnerability and what can be done to reduce vulnerability are key areas of research and action for many disaster response agencies.

The Federation defines disasters as extreme events which outstrip the capacities of communities, or certain sections of communities, to cope with them. Disasters occur because of the interaction of extreme events and processes, both natural and man-made, with vulnerable people. Therefore, in disaster prevention, preparedness and response, the focus of the Federation and of National Societies, is on vulnerable people. We define *vulnerable people* as those at risk from situations that can threaten their lives or long term well-being and who have the least capacity to cope with the immediate effects of stress or to achieve sustainable recovery from it.

The purpose of Red Cross and Red Crescent interventions is to respond to people's immediate needs and to reduce their vulnerability so as to bring about a sustainable improvement in the long term welfare of the affected population and reduce their risk to future disasters. Vulnerability to disasters often results from underlying chronic problems of poverty, disempowerment, and inequitable development.

Tackling vulnerability to disasters, whether it is caused by poverty and inequality, environmental degradation, or degenerating social and man-made structures, is as important to disaster reduction as predicting earthquakes, reinforcing flood barriers and building cyclone shelters.

The Topical Session

Building upon this approach the Vulnerable Communities Topical Session at the IDNDR mid-term conference will present four papers, each of which explores a different aspect of vulnerability.

The critical role of access to timely information, and its antithesis, censorship of information, will be examined, in a paper presented by ***Article 19***, as one of the least understood causes of disaster vulnerability.

A paper presented by ***the Intermediate Technology Development Group*** in Lima, Peru will look at community based disaster mitigation and vulnerability reduction strategies amongst some of the poorest communities of Peru.

UNICEF will present the results of their findings on the causes of disaster vulnerability in Bangladesh.

The final paper, presented by ***the International Federation of Red Cross and Red Crescent Societies***, will focus on Southern Africa and the experiences of the last two years where many communities faced, for the first time, a real threat from drought triggered famine.

The topical session is being organised by the International Federation of Red Cross and Red Crescent Societies, an independent non-governmental organisation with 75 year's experience in the management of international disaster response operations. ■

For further information contact: The Public Affairs Department, The International Federation of Red Cross and Red Crescent Societies, PO Box 372, 1211 Geneva 19, Switzerland. Telephone: (41 22) 730 42 22, Fax (41 22) 733 03 95

After the Flood

At a time of increasing demands on the United Nations in responding to conflicts and natural catastrophes, the UN Development Programme in China has sought new ways to help flooded communities recover from disaster and prepare for the next.

by Ken Keobke

Beijing - Throughout history, cultures have shared myths of the end of the world by flood. There is little wonder; the devastation of a flood is so final, so complete, that before people had begun recording the horror in history books, they passed the fear and lessons of the great floods on to their children through art, song and stories.

Ken Keobke/UNDP

Villagers help reconstruct the Shucheng Country school in Anhui Province

But now, new chapters and new endings to these stories are being written. The past two years have brought a series of events remarkable for the United Nations, China, and various donor countries. In 1991, Anhui and 17 other areas and provinces in China were struck by a series of natural disasters, with Anhui particularly hard hit by a hundred days of flooding followed by a hundred days of drought. The lives of millions of Chinese were seriously disrupted, both in the countryside and urban areas. The ensuing response of the Chinese government and the United Nations was immediate and unprecedented. Within two weeks of the Chinese government's appeal for assistance, the United Nations Development Programme (UNDP) and the Office of the United Nations Disaster Relief Coordinator (UNDRO) had mobilized more than US$7 million from 14 donor countries and aid agencies, enabling relief and rehabilitation operations to start. In the months that followed, an additional $10 million was raised. Donors included Australia, Austria, Canada, Denmark, Finland, France, Germany, Hong Kong, the Netherlands, New Zealand, the United Kingdom and the United States.

UNDP and the Chinese government agreed on a comprehensive approach to recovery. It encompassed immediate relief, but also long-term risk reduction and the establishment of emergency management information systems - focusing on the hard-hit provinces of Anhui and Jiangsu. "In a situation where the income levels of tens of millions of people have been reduced to the equivalent of $20 a year, where billions of dollars are needed to recreate every structure that once stood, more is required than just rebuilding of schools and hospitals," said a UNDP official in Beijing following the crisis. "We needed to give local governments the techniques and resources to promote recovery and to be better prepared for the next disaster."

The fact that this was the first time China had ever appealed for international disaster assistance added to the stature and importance of the UN's response, which, along with UNDP and UNDRO, involved the United Nations Children's Fund, the World Health Organization and the United Nations High Commissioner for Refugees. But to better understand what was required by the recovery effort, it is first necessary to consider the geography and history of places that were hardest hit.

KYRGYZSTAN
DEMOCRATIC PEOPLE'S REPUBLIC OF
Beijing
CHINA
Jiangsu
Anhui
Hefei
Nanjing
BHUTAN
VIET NAM
LAO PDR

Looking over a map of Anhui Province, one sees a delicate blue lace of rivers strung with hundreds of lakes.
Descending in an arc by plane over its capital of Hefei, one sees this lace stretched over a tapestry woven with every shade of green: wheat in the north of the province, rice in the south, and tea across the mountains. Anhui is among the most densely populated of Chinese provinces, and the people who live here rely desperately on the strength of their harvests.

The terrible truth of this has been rediscovered several times this century when floods wiped out crops and food supplies. In 1954, 30,000 people in China lost their lives. In 1931 an estimated 890,000 people drowned, starved, or died of illnesses that spread due to malnutrition and to the destruction of clean water supplies.

Although the flooding in 1991 was the worst in 100 years, immediate intervention resulted in minimal loss of life. Fang Gongpu, a 70-year-old watchman at a UNDP-supported flood rehabilitation project in Anhui, recalls: "I have two sons, both farmers, and when the rains came in 1991 they built dykes to protect our home. But the dykes broke and everything was ruined. We lost all our furniture, all our grain. The rains were worse than in 1954. But this time we have been able to find work and to buy the things we need."

The creation of employment opportunities involving the rehabilitation of Anhui's hardest-hit communities is a key element of a recovery programme that has helped people like Fang Gongpu rebuild their lives. And this difference is a radical change from the usual irony of disasters: when a flood brings ruin to a rural community, peasants often lack not only the resources to make their land productive again, but the chance to earn money necessary to replace what they have lost. Soon, a cycle of poverty and debt sets in that consumes their savings, the remains of their farms and their hope. The Chinese government, working with UNDP, has sought to change this by creating employment opportunities for local villagers. To date, residents of Anhui have helped rebuild 47 schools and 28 clinics and hospitals; another 30 schools and hospitals are also being built across Jiangsu and Anhui Province.

Activities focused first on relief and later on rehabilitation. The recovery programme has also made possible longer-term training in disaster management and flood prevention, as well as new construction techniques. Setsuko Yamazaki, assistant UNDP resident representative in Beijing, explains: "Future flooding in this area is almost unavoidable, so we tried to find ways that damage could be lessened. An important element of our plan was to involve people at the grassroots, while also improving the skills of county and provincial officials to help them cope with future disasters."

When the floods first came, Anhui's Quanjiao County was among the places worst hit. Even in the town's higher streets, walls bear marks of where torrents of water rose, sometimes as high as five metres. Li Zonglie, the county magistrate, recounts the terror along with the statistics: "Rains in excess of three times the average fell and soil-laden waters burst over the banks of the Chu and 22 other rivers which run through the county. Large areas of farmland were inundated, ruining 60 per cent of the wheat crop, and 80 per cent of the rape seed plants. Three-quarters of all urban areas were flooded, while roads, railways, communications systems, electricity networks and drinking water supplies were left in shambles," Mr. Li explains.

More than 43,000 homes were damaged and an additional 18,000 were completely levelled. Hundreds of schools and factories were also destroyed. The threat of epidemics was particularly frightening because 69 township and village medical clinics were badly damaged.

"The first thing we did," says Mr. Li, "was to send out roving medical teams and emergency supplies. And after the waves began to subside, we began working with UNDP to rebuild and rehabilitate the county."

Shen Yulong, a local government official, had been on a training course in Canada when the floods began. With feelings of helplessness, he watched the televised images of the destruction of places he knew so well.

"Within six days of coming back I started work with Anhui's Provincial Leading Group, a disaster management team. Rehabilitation activities began with week-long workshops sponsored by UNDP that focused on construction techniques, disaster management training and development of rural industries. These were attended by some 50 local leaders, all experts in their fields.

"Once the needs of each county were assessed, UNDP experts helped us decide on specific local projects," Mr. Shen explains. "New designs and approaches were settled upon that required buildings to be situated in less vulnerable locations, and built of flood-resistant materials."

In Anhui's Quanjiao County, UNDP supported the construction of the Guandu Township Clinic, where Chang Xianping, a local resident, was among the 40 workers. Like many others, Mr. Chang is a farmer who struggled with useless dykes and then watched as floodwaters rose and flowed a metre high through his rural home. Like others, he lost most of his possessions, including food supplies and all of his livestock. His 1.5 hectares of rice fields were completely destroyed. "I lived in a temporary shelter for a month weaving bamboo mats to reinforce the dykes. Afterwards, I worked to scrape the mud and sand from my home. Then I came here and found work as a labourer."

The precious income from the construction project is now allowing Mr. Chang to regain some semblance of his former life. He still plants and harvests his fields, but the rest of the time he joins other farmers in building the township's new clinic.

Xia Jihe, a master mason and Mr. Chang's foreman, explains how this and other new buildings will withstand future flooding. "We usually mix concrete by hand, but UNDP helped us buy a mechanical mixer which makes for

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Floods broke through five key dams and dykes. Within days, 18 of Shucheng County's 30 townships had become a single lake.

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finer, far stronger materials. In the workshops we met construction experts from abroad who improved our techniques. For example, we no longer mix concrete when the temperature is below freezing because it's not as strong. Also, the site of the new clinic has been moved to higher ground and the foundation of the building is double the usual height."

Mr. Xia says that all the new clinicswill be at least two storeys. "In the last flood, so many machines were lost," he says. "New X-ray machines and other necessary medical equipment will be safer on the second floor."

For the same reason, a school under construction in Shucheng County is rising to three storeys. The county magistrate, Shu Yongcheng, points to the watermarks along the walls of the old one-storey school. "The water came up and through the windows. Some of the desks we can repair, some we cannot. But the books, the papers are gone, the science and athletic equipment ruined. There was no safe place to put it all."

Many of the county's 1,800 teachers, who live in simple quarters adjoining their school, suffered serious damage to their homes, which were constructed of traditional sun-baked mud and straw bricks. Since rehabilitation work began, all new construction must meet strict guidelines concerning location, and cement brick is now the designated building material. As part of the reconstruction effort in Shucheng and in other areas, thousands of university and technical students were mobilized to help select sites, design new homes, and educate villagers reluctant to leave the land of their ancestors to rebuild on higher ground.

In Shucheng, the devastation was particularly dramatic. Floods broke through five key dams and dykes. Within days, 18 of the county's 30 townships had become a single lake, displacing 200,000 people. Mountain floods covered over 3,200 hectares of farmland with sand and stone - much of which cannot be reclaimed. The government in this country is therefore giving priority to promoting new forms of employment, including the start up of small cottage industries.

Three to five years are likely to pass before Anhui fully recovers. And while rehabilitation efforts and long-term planning are both in place, more international support and assistance are needed, especially since more floods may come.

Many lessons were learned during the hundred days of flooding and the hundred days of drought. But will they be remembered? Songs have been written, heroes praised and on the one-year anniversary of the disaster, a play called "The Flood" opened in Beijing's Children's Theatre. In the play, a cast of villagers, surrounded by sandbags, huddles beneath a tarpaulin, finding shelter from the rain and rising waters. They have all had personal tragedies and conflicts with each other, but in the course of an evening, these sorrows are healed and the problems overcome. The final message of the play: "We can all survive if we help one another." ■

Ken Keobke, a Canadian writer and teacher, is based in Hong Kong.

For additional information, contact: Public Information Office, United Nations Development Programme, New York, New York Telepone: (212) 906 5000, Fax: (212) 906 5364.

Although the flooding in 1991 was the worst in 100 years, immediate intervention resulted in minimal loss of life.

FAO Helps Limit Disaster from Drought with Broad-Based Early Warning System and Drylands Development Strategy

by the Food and Agriculture Organization

When images of tortured starving faces and the bloated bellies of dying children lead the nightly news, the world rushes food and assistance to the hungry. As the food aid arrives, it feeds the news as well as the starving.

The instant impact of today's media reports tend to create an impression of Africa as a continent of recurring famine. It is, however, drought that is Africa's principal natural disaster. When it is not handled effectively, especially when war or civil conflict is involved, drought can lead to famine.

Famine is not the necessary outcome of drought. There are proven strategies to reduce the effects of drought and prevent even the most vulnerable populations from starving.

In 1992 twelve southern African countries were hit by a drought that caused greater crop failure than Ethiopia, the Sahel and the Horn of Africa faced in 1984 and 1985. But, only a few reporters covered the southern Africa drought. It was a story about millions who could have died but did not.

Using information and analysis supplied by a UN Food and Agriculture Organization (FAO), governments were prepared for drought and organized a quick response with assistance from UN relief agencies, non-governmental organizations and a number of bilateral assistance agencies. The unprecedented early response prevented a famine and as such a major news story.

FAO, the UN World Food Programme (WFP) and the International Fund for Agricultural Development (IFAD) presented the latest information on technologies and sustainable strategies to reduce the threat of drought and some other natural disasters to the World Conference on Natural Disaster Reduction in Tokyo, May 23-27, 1994.

While it is not possible to avoid drought, assistance provided by FAO and other agencies can help member countries avoid much of the damage and social upheaval it causes. Long before disaster strikes, governments need to train officials and provide information that will guide farmers so they know what to do to minimize the disaster.

"One of the first things that emerged from FAO's early drought relief efforts, was the need to avoid fielding just relief operations," said Mr. R.J. Perkins, Director of FAO's Trade and Commodities Division and in charge of food information and early warnings. "We needed to move to a prevention or reduction strategy."

"To do this, a flow of information was needed so we could look for the earliest warning signs of crop failure and track potential food and animal feed supply difficulties," said Mr. Perkins.

That led FAO to pioneer the development of the Global Information and Early Warning System (GIEWS), which gave the world precious lead time to reduce the devastating effects of natural disasters on food availability. Early warning of impending drought was coupled with action to reduce its effects. Local participation was essential in the design, implementation and evaluation of drought preparedness operations.

Some of the ways FAO found to shorten

the period of recovery and reduce vulnerability to future food emergencies include: crop diversification, investing in soil conservation and drought resistant crop varieties. Improved range management, fodder production, crop handling, processing and storage also help.

Other changes that can lessen the effects of drought are: better irrigation systems, water harvesting, planting with low crop density to take full advantage of what little water there is. Terracing and the use of drought avoiding crop varieties with short growing cycles also reduce the impact of droughts.

Such investments are costly and do not directly provide a safety net for household consumption. But, they do contribute to overall food security, maintaining the assets of farming families and their productive capacity.

Areas that have experienced repeat droughts often suffer severe rural impoverishment, making it difficult for people to make a living. When some farmers expect drought they stop making long-term, productive capital investments. In fact, drought damages the entire national economy, because resources must be diverted from development programs to import food for emergency relief.

Spending on relief for drought victims does not solve the basic problem of insulating drought-prone areas from recurring disasters which result from prolonged neglect of the environment and destruction of forests and over grazing. But, when drought prevention measures are integrated into a country's long-term economic development plan, the capacity to reduce the impact of a drought is considerable.

In most cases, technology alone cannot control dryland degradation. Improved management and institutions are essential to develop drylands. The most costly precondition of drylands development is the rural infrastructure needed to deliver the vital inputs and services. Relieving population pressure on natural resources is the remaining precondition to develop most drylands. Better development planning, starting with a national strategy for drylands development, is essential. Another important aspect is to secure land tenure for small farmers and shepherds. Strengthening dryland agricultural research would also go a long way to help organize and focus dryland development activities.

One successful response to drought is the Keita Valley project in Niger, where a succession of droughts and pest invasions in the 1970s made it impossible for the country to achieve lasting food security. The project is a cooperative effort involving FAO, Niger, Italy and WFP.

A program of sustainable development was begun in the Keita District of Niger, a 5,000 square kilometer area of plateaux and plains, criss-crossed by a network of rainy season waterways called "koris."

The Keita Valley, fertile pasture land with a wide variety of flora and fauna before the droughts of the 1970s, is home to some 156,00 people living in 205 villages.

During its first year, the project restored 616 hectares of plateaux and plains. By mechanically loosening the soil and building small anti-erosion bunds made from compacted earth, reiforced with stones, the runoff of rainwater was slowed, increasing the amount absorbed by the soil.

The project reinforced the banks of the "koris" with wide, thick plantations of trees to act as barriers between the koris and the plains. Dams were built to slow the water flow and to increase the supply of groundwater to the plains.

Trees were planted to stop wind erosion and restore some of the areas once-flourishing wildlife. Nearly two million afforestation trenches will be planted by the end of the project in steep and eroded areas unsuitable for agriculture. Goats, sheep and cattle can graze on the trees and shrubs during periods of drought.

The project set up a meteorological station linked to the national weather-monitoring system to record year-round data on atmospheric conditions, soil and vegetation. Water gauges around the district supply valuable information about rainfall. GIEWS, set up in 1975, provides a comprehensive source for data and analyses of current and prospective food supply and demand situations in all countries of the world. It monitors global supply and demand for all basic foods such as wheat, rice, coarse grains, milk and milk products, oilseeds, meats, sugar, cassava, pulses and livestock feed.

All elements likely to affect food supply and demand are measured, including weather, animal and plant diseases, pests, range and cropland conditions, transportation and storage problems, government policies affecting production, consumption, prices and trade in basic foods and ocean freight rates.

When countries are found to be vulnerable, FAO dispatches teams to refine the crop assessments. The system provides warnings not only of food shortages, but also food surpluses that could be used in deficit areas.

GIEWS focuses special attention on pre-famine indicators that give the earliest possible warning that there is a food supply problem on the horizon. Changes in local market prices of basic foodstuffs are monitored closely in countries most prone to food emergencies. Additional warning indicators GIEWS watches are cereal stocks, market arrivals, labor wages, cattle prices, and slaughter rates. Other indicators such as queues at food shops, population movements, cases of malnutrition and starvation-related deaths warn of an descent into a disaster situation.

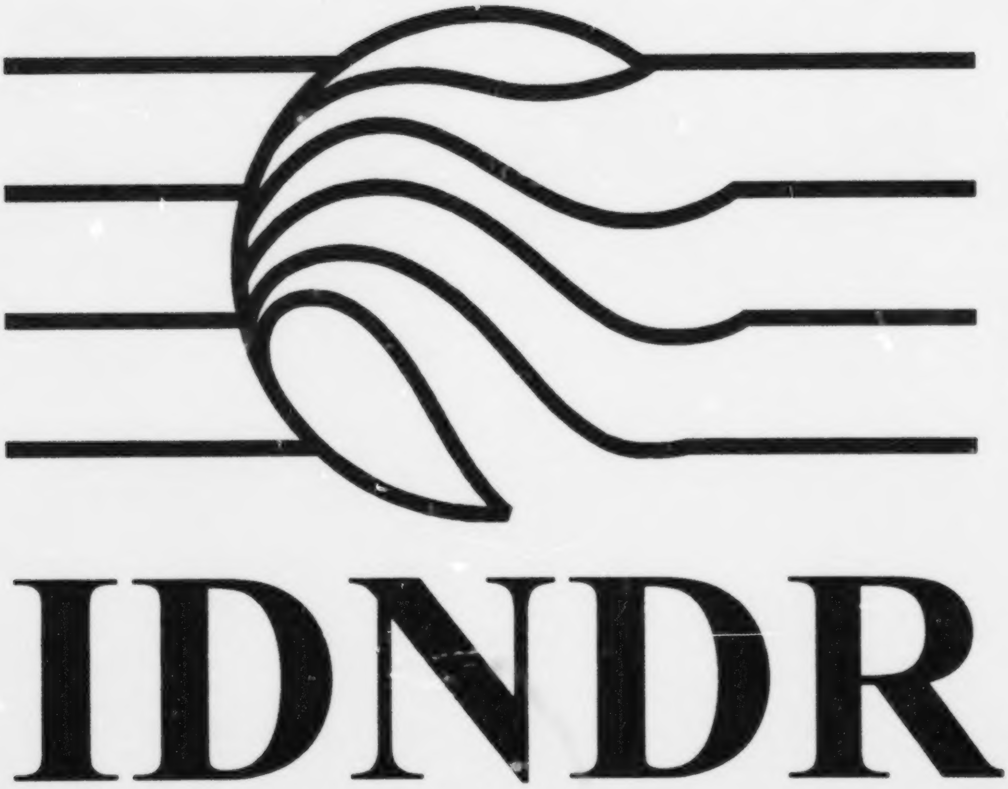
Based on estimated domestic supplies and measured against estimates of recent food consumption, GIEWS calculates the cereal import requirements and food aid needs of individual countries before the start of the new marketing year.

FAO also provides assistance to developing countries to establish or improve their own early warning systems through its Food Security Assistance Scheme. About 40, mostly African countries, have received FAO assistance in this area.

An important facet of GIEWS is a unique space-based system that monitors the development of food crops as well as breeding conditions for desert locusts in Africa, the Near East and southwest Asia. Called Africa Real Time Environmental Monitoring Information System, or ARTEMIS. It uses high frequency environmental satellite data to produce images indicating the rainfall and the development of vegetation at continental scales.

However, even with such precise, fast early warning system, a truly successful disaster response will always depend on people being prepared and governments having enough funds to carry out a comprehensive long term disaster reduction program. ■

For additional information, contact: Public Information Office, Food and Agriculture Organization of the United Nations, Rome, Italy, Telephone: 52.25.32.59, 52.25.36.25, 52.25.35.94, Fax: 52.25.59.24, 52.25.36.99, 52.25.49.74



The logo of the International Decade for Natural Disaster Reduction is made up of two elements: the curving lines converging in a vortex represent a shattered globe; and the regular parallels on both sides symbolize order and regularity brought about by disaster reduction actions.

Designer: Patrizia Tazza, Agency: Page, Italy

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GE.94-01342

The Effects of Disasters on Modern Societies

An Introduction to Technical Committee Session C

by Hideki Kaji

The significance of the IDNDR should be understood as the commencement of a long continuing global cooperation for natural disaster reduction. No doubt all problems regarding natural disasters cannot be resolved within a single decade, if so, global cooperative action for reducing natural disasters should be continued for several decades, or even at a slower pace, extended over one century until a less hazardous world can be achieved. Even fully industrialized nations with long years of efforts in coping with earthquakes, floods, cyclones/typhoon, and other types of natural perils, are still threatened by natural disaster risks. Thus, much time is required to establish a world where all natural disasters can be scientifically and technically controlled and regarded no longer as catastrophes.

In this context, all activities of the IDNDR should be recognized as preparatory work for natural disaster reduction to be implemented in the next century when the world must deal with denser populations, mostly concentrated in urbanized areas supported by advanced technology and modernized social systems.

With this background, the United Nations Centre for Regional Development, Department for Development Support and Management Services (UNDDSMS/ UNCRD), taking the opportunity of the World Conference Director, UNCRD on Natural Disaster Reduction, would like to organize a Technical Committee Session focusing on the Effects of Disasters on Modern Societies.

The first part of the Session will be devoted to identifying natural disaster risks in modern societies. Four selected speakers will give presentations on the characteristics of disasters in metropolitan areas; the relation between environmental degradation and disaster risks in megacities; and the scientific approach to risk assessment of disasters in megacities and international cooperative actions for implementing such risk assessment in megacities in a coordinated manner. In terms of the presented topics, commentators will be requested to share actual experiences in their countries and following, with the participation of the general audience, a discussion will be held to explore effective strategies for assessing disaster risks in modern societies that the world will confront in the twenty-first century.

The major focus of the second part of the Session is how to cope with the identified risks in modern societies by utilizing structural and nonstructural measures. As examples of the utilization of advanced technologies and modernized social systems for preventing and mitigating natural disasters, four topics will be presented including structural engineering for protecting infrastructures from the threats of natural disasters; disaster reduction by means of both monitoring and communication satellite technologies; and disaster management with the help of a developed insurance system at the global level. These presentations will be followed by comments and a floor discussion on recommendations for developing appropriate measures for disaster reduction in the next century and, particularly, action plans for the second half of the IDNDR. ■

Hideki Kaji is Director of the United Nations Centre for Regional Development (UNCRD).

For additional information, contact: United Nations Centre for Regional Development, Nagoya, Japan. Telephone: (81.52) 561 9377, Fax: (81.52) 561 9375.

PROGRAMME

Place: Pacific Convention Plaza Yokohama (PACIFICO Yokohama), Yokohama, Japan
Date: afternoon, 24 May 1994

I. Natural Disaster Risk in Modern Societies

1) **Disaster Management in Metropolitan Areas**
Mr. Shinjiro Mizutani, Chairman of the IDNDR Aichi/Nagoya International Conference 1993 JAPAN

2) **Urban Environmental Degradation and Vulnerability to Disasters**
Mr. Mohan Munasinghe, Chief, Environmental Policy Division, the World Bank

3) **Risk Management and Preventive Planning in Megacities: Scientific Approach for Action**
Mr. Philippe Masure, IAEG, STC member, BRGM

4) **Coordination and Integration of International Projects on Risk Assessment in Megacities**
Mr. Yoshikazu Kitagawa, Director, IISEE

Comments by three speakers: High-ranking personalities from selected megalopolises

Discussion on Risk Assessment in Megacities

II. Policies for Natural Disaster Reduction in Modern Societies

5) **Megacities: Infrastructure for Response to Natural Disaster**
Mr. Stuart Mustow, President of ICE/WFEO

6) **The Application of Satellite Remote Sensing for Natural Disaster Reduction in Developing Countries**
Mr. Niek Rengers, IAF/ITC

7) **The Use of Mobile Satellite Communications in Natural Disaster Preparedness and Emergency Response**
Mr. Eugene Staffa, Manager, INMARSAT

8) **Role of Non-Life Insurance in Disaster Management Systems**
Mr. Takashi Onoda, Chairman, The Marine and, Fire Insurance Association of Japan

Comments by two speakers: High-ranking personalities from selected megalopilises

Discussion on Information, Communication and Insurance Systems

Crisis Prevention

Can better development planning lessen the toll of civil emergencies and natural disasters?

by Peter Witham

Even a cursory scan of the world's headlines is depressing: armed conflicts are grinding on in Somalia, Bosnia, Afghanistan and in a growing number of other countries. United Nations peacekeepers and fieldworkers are becoming the targets of attack rather than hapless victims. And the effects of natural disasters are becoming more catastrophic each year. International relief aid, in response to such emergencies, has increased substantially. But how large can these sums of money realistically be expected to grow? With no end in sight to the need for relief, the good will of international donors is quickly giving way to disillusionment.

This leads us to a second question, which is, where does development fit in this grim scenario? For the development community to remain aloof from the issue of disasters and emergencies is not only politically short-sighted, it also ignores totally the causes and the effects of such phenomena.

Natural hazards such as hurricanes and earthquakes may be impossible to prevent. But they only become natural disasters if people are vulnerable. Why is it, for example, that a 1988 earthquake in Armenia that registered 6.9 on the Richter scale killed up to 25,000 people, when an earthquake of almost the exact same magnitude in Los Angeles claimed only 57 lives? By reducing poverty we can help increase the coping capacity of vulnerable populations. Therefore helping people lower such vulnerability is as much a development issue as the environment, or women's participation in development. Moreover, the repercussions of natural disasters go far beyond the immediate casualty list that so transfixes the media. Secondary and longer-term effects can be equally if not more devastating. And they must be taken into account by development practitioners.

It has been estimated, for example, that the damage to Mexico City's infrastructure from a massive 1985 earthquake amounted to US$ 3.6 billion. Yet over the subsequent five years, the negative ripple effect on that country's balance of payments resulted in a loss of $8.6 billion. Furthermore, reconstruction requirements forced Mexican authorities to revise their economic policies to meet an increased demand for public funding, credits and imports. The priorities for public expenditure were redirected to reconstruction projects, leaving many of the pre-disaster problems of the city and its people unattended.

In Bangladesh, floods in 1987 and 1988 killed 2,000 people. But on closer examination we find that the toll was much more extensive than that in each of these years the country's economic growth rate was halved by the delayed planting of rice and the destruction of seedbeds in the floods, further undermining the country's food security. All of these are considerations that go beyond relief, but they must be taken into account by development professionals.

Other emergencies may be more complex, but must be subjected to the same analysis. As the situations in Angola, Burundi, Somalia and the former Yugoslavia demonstrate, we know little about the dynamics of emergencies that arise from civil conflict. We do know, however, that their cause usually lies in a lethal mix of poverty, poor governance and ethnic or religious rivalries exacerbated by profound social inequities. We are also learning that their resolution frequently requires the application of peace-keeping and political measures, combined with relief and development. Among the most virulent effects of such complex emergencies is the massive displacement of people; women and children are the principal victims, constituting 70 per cent of the world's refugees.

Photo: Chip Hires/Gamma Liaison

Floods in Bangladesh: Natural hazards become natural disasters when people are vulnerable

These complex emergencies around the world could easily get worse before they get better. This being said, carefully designed development efforts - carried out as building blocks to national reconciliation in the fragile post-conflict stage - will need to increase commensurately. The appropriateness and the sustainability of these development efforts will be one of the most important factors in determining whether peace itself becomes sustainable. For example, the absence of carefully tailored reintegration strategies for demobilized soldiers and their host communities would be an almost open invitation to resumed violence.

Until now, the standard response of the donor community has been one of generous relief aid. In 1970, 1.5 per cent of Official Development Assistance was devoted to emergency relief efforts By 1991, this figure had increased to 6.5 per cent. While later figures are not yet available, a substantial rise is certain (if only because of Somalia and the former Yugoslavia). it is not my intention to argue against such relief programmes. The UN High Commissioner for Refugees, UNICEF, the World Food Programme, bilateral donors and the NGO community are performing prodigiously with totally inadequate financial and human resources. Yet we must also be conscious of the impact of such aid and try harder to prevent the need for relief in the first place. An increasing body of evidence suggests, for example, that emergency aid can sometimes be counter-productive in the longer term, increasing the vulnerability of populations and impeding recovery. Ironically, we find ourselves in a situation today where it is far easier to obtain funds for maintaining refugees in their places of asylum than for helping them reintegrate into their own societies. In such cases, we may very well be helping to perpetuate the problem that we sought to relieve, as the presence of large numbers of refugees is sometimes itself a cause of conflict.

So how are we to proceed? And what exactly is the nature of the relief to development continuum that remains logical in the abstract but elusive in reality? The concept of a continuum does not imply a linear and absolutely progressive set of responses. On the contrary, it means that we are dealing with a set of processes rather than rigidly defined steps. It also means that development must be very much part of the disaster management process, and that the aim of the continuum must be to move from relief to rehabilitation and resumed development at the earliest opportunity. However, this resumed development must include conscious measures to reduce the vulnerability that caused the disaster or the emergency in the first place.

In other words, we must give greater thought to prevention before we reach for the "cure" - for humanitarian, political and financial reasons. (The Japanese insurance industry spends $200 million a year on disaster education alone.) And as development practitioners, we must reconcile ourselves to the vastly more complicated environment in which we have to operate.

This means, for example, that we will have to begin examining whether the economic policy "medicine" often prescribed will reduce conflict or enhance it. We will have to ask ourselves if the reconstruction period following a civil conflict or natural disaster is the right time to advocate cuts in social spending, as has happened in certain countries in Africa and Latin America. similarly, is it really in children's best interests to build a school in a seismic zone without first ensuring its structural stability? And does it really make sense to urge drought-prone countries to increase their reliance on cash crops, as has been done in some instances.

If the international community is to get a grip on the current situation, we must start by examining the linkages between emergencies, disasters and development as a basis for action. A good way to begin is through training that involves both development and relief institutions. The Disaster Management programme, jointly sponsored by the United Nations Development Programme (UNDP) and the UN's Department for Humanitarian Affairs, is one example. In the last two years over 1,000 people have been trained in 30 countries. In many instances, the programme's week-long workshops brought development practitioners and relief personnel together for the first time. Sixteen of the participating countries have implemented policy and structural changes as a result. In Kenya, for example, responsibility for disaster management, which was formerly relegated to the Ministry of Agriculture, is now firmly placed at the highest political, policy-making and financial levels of government. Still, there is a long way to go.

A story that never made headlines anywhere involves hundreds of the poorest people in Bangladesh, whose homes remained intact during the floods of 1988, when many others were simply washed away. These people were fortunate enough to have obtained credit through the Grameen Bank for construction materials as well as instruction in the building of flood-resistant homes. The Grammen revolving fund had received start-up capital from UNDP. Since that time the effort has been expanded, and more than 10,500 flood-resistant homes have been built in the last two years.

This is just one example of the kind of action we need more of - in fairly predictable and recurring circumstances such as the floods in Bangladesh, as well as in the more complex, man-made emergencies to which we must respond. ■

Peter Witham is deputy director of UNDP's humanitarian programme in New York.

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WORLD CONFERENCE ON
NATURAL DISASTER REDUCTION
YOKOHAMA, JAPAN
23 - 27 MAY 1994

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WORLD CONFERENCE ON NATURAL DISASTER REDUCTION
YOKOHAMA, JAPAN
23 - 27 MAY 1994

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* *

Bona fide representatives of the mass media -- press, photo, radio, television and film -- will be accredited for coverage of the **WORLD CONFERENCE ON NATURAL DISASTER REDUCTION**, to be held in Yokohama, Japan from 23 to 27 May 1994.

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Completed application forms, together with a letter of assignment on official letterhead from the Editor or Bureau Chief, should be mailed to:

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MAJOR DISASTERS AROUND THE WORLD, 1963-1992

Significant Disasters Based on: Damage, Affected Persons, Deaths

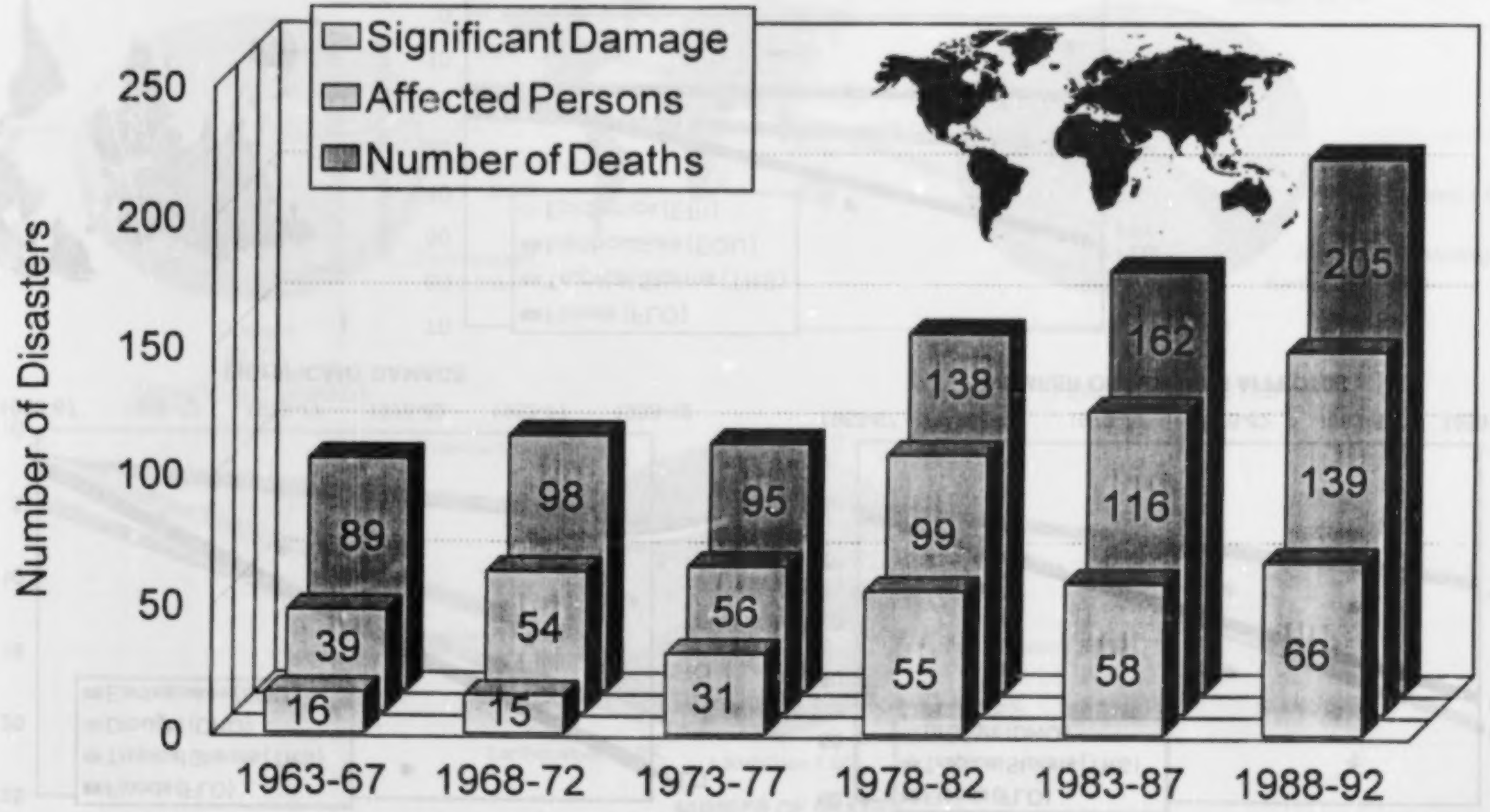

Figure 1

Category	Criterion
Significant Damage	Damage of 1% or more of total annual GNP
Number of Affected People	1% or more of total population
Number of Deaths	100 or more

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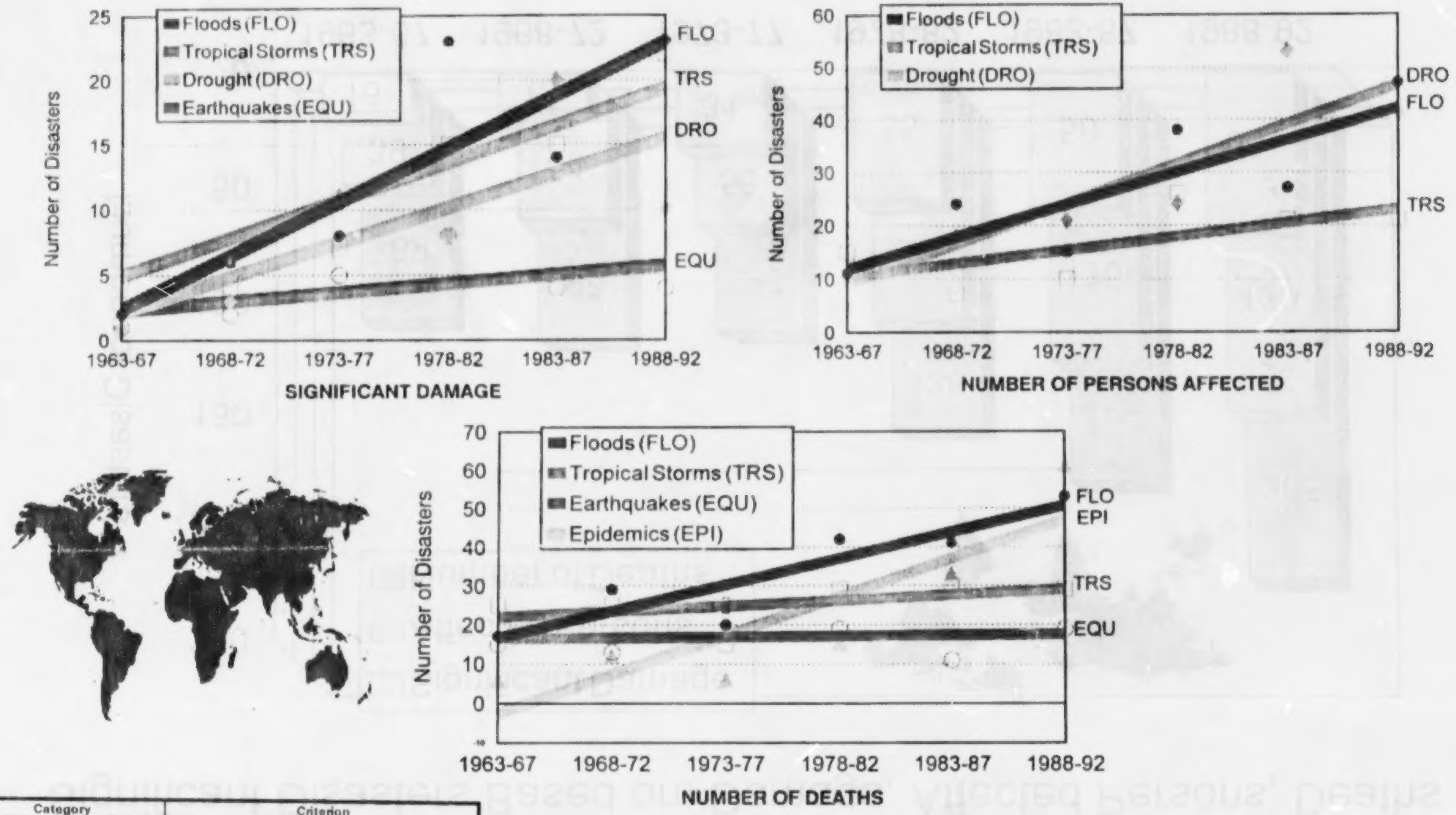
MAJOR DISASTERS AROUND THE WORLD

Trends: Most Significant Disaster Types by Category



Category	Criterion
Significant Damage	Damage of 1% or more of total annual GNP
Number of Affected People	1% or more of total population
Number of Deaths	100 or more

Figure 4

MAJOR DISASTERS AROUND THE WORLD, 1963-1992

% of Significant Disasters by Type, Based on: Damage, Persons Affected, Deaths

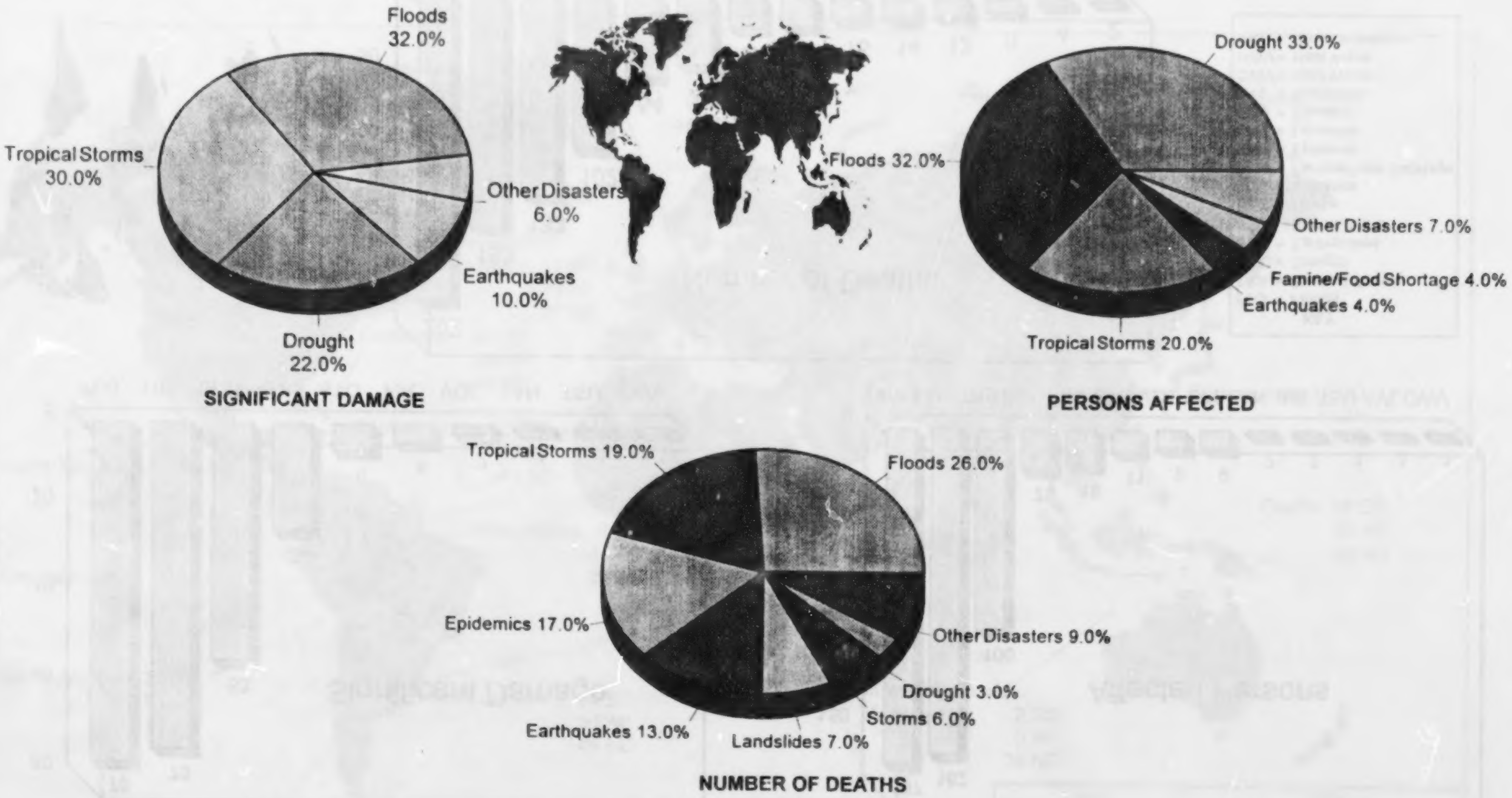
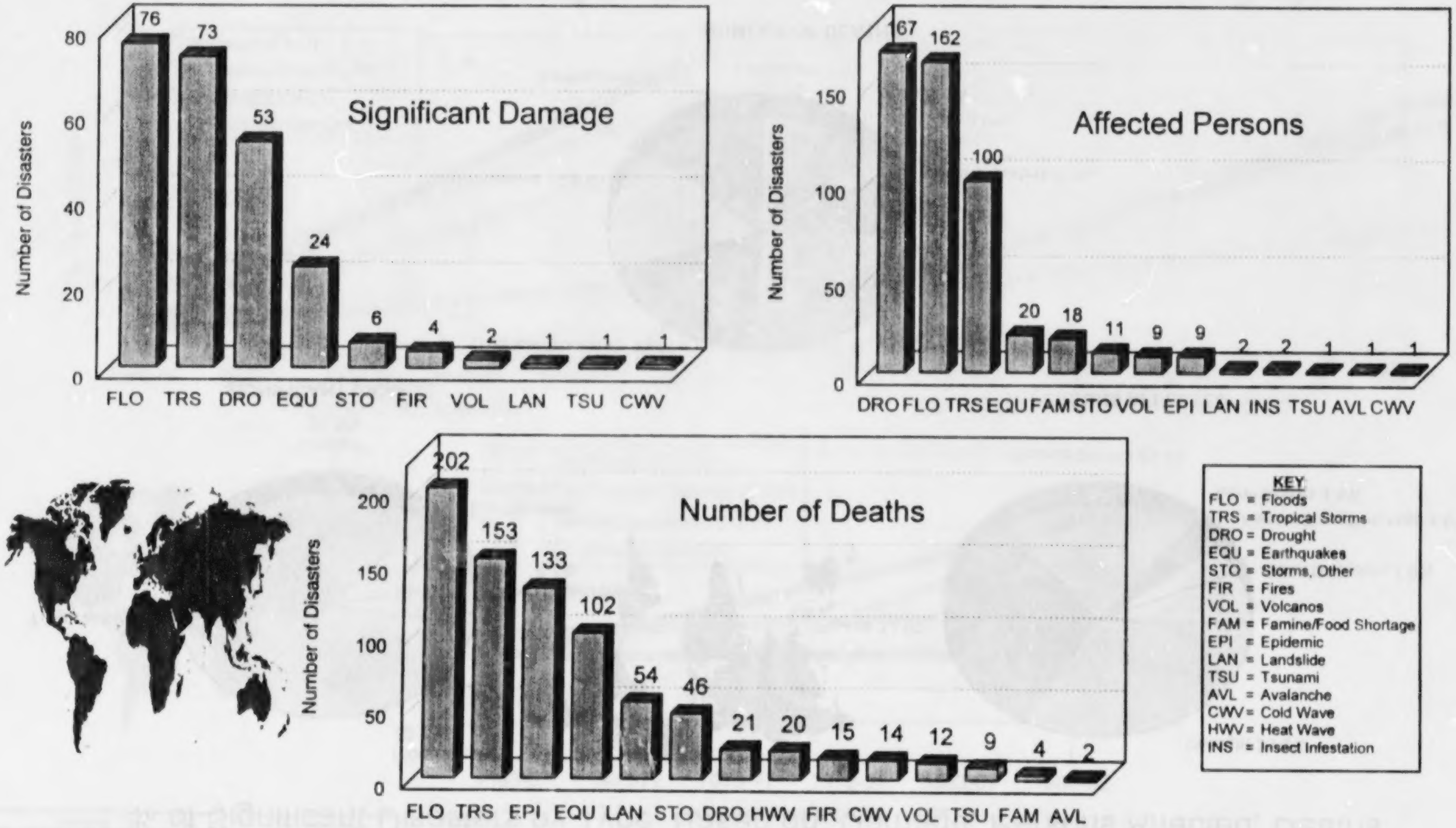


Figure 3

Category	Criterion
Significant Damage	Damage of 1% or more of total annual GNP
Number of Affected People	1% or more of total population
Number of Deaths	100 or more

MAJOR DISASTERS AROUND THE WORLD, 1963-1992

Number of Significant Disasters by Type, Based on: Damage, Persons Affected, Deaths

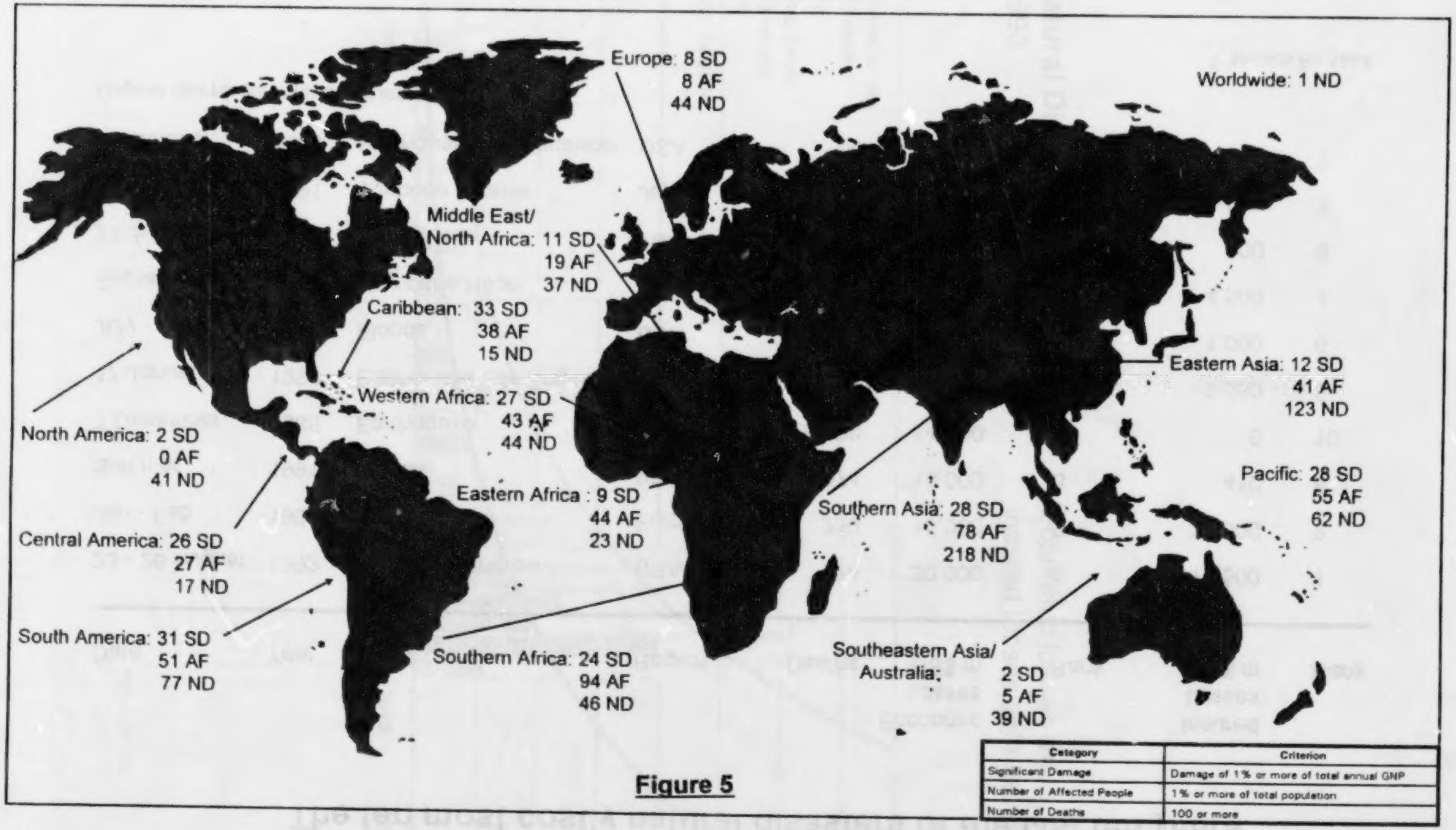


Category	Criterion
Significant Damage	Damage of 1% or more of total annual GNP
Number of Affected People	1% or more of total population
Number of Deaths	100 or more

Figure 2

MAJOR DISASTERS AROUND THE WORLD, 1963-1992

Major Disasters by Region, Based on: Significant Damage (SD), No. Affected (AF), No. of Deaths (ND)


Europe: 8 SD
8 AF
44 ND
Worldwide: 1 ND
Middle East/
North Africa: 11 SD
19 AF
37 ND
Caribbean: 33 SD
38 AF
15 ND
Eastern Asia: 12 SD
41 AF
123 ND
Western Africa: 27 SD
43 AF
44 ND
North America: 2 SD
0 AF
41 ND
Pacific: 28 SD
55 AF
62 ND
Eastern Africa : 9 SD
44 AF
23 ND
Southern Asia: 28 SD
78 AF
218 ND
Central America: 26 SD
27 AF
17 ND
South America: 31 SD
51 AF
77 ND
Southern Africa: 24 SD
94 AF
46 ND
Southeastern Asia/
Australia; 2 SD
5 AF
39 ND

Category	Criterion
Significant Damage	Damage of 1% or more of total annual GNP
Number of Affected People	1% or more of total population
Number of Deaths	100 or more

Figure 5

The ten most costly natural disasters of the last ten years

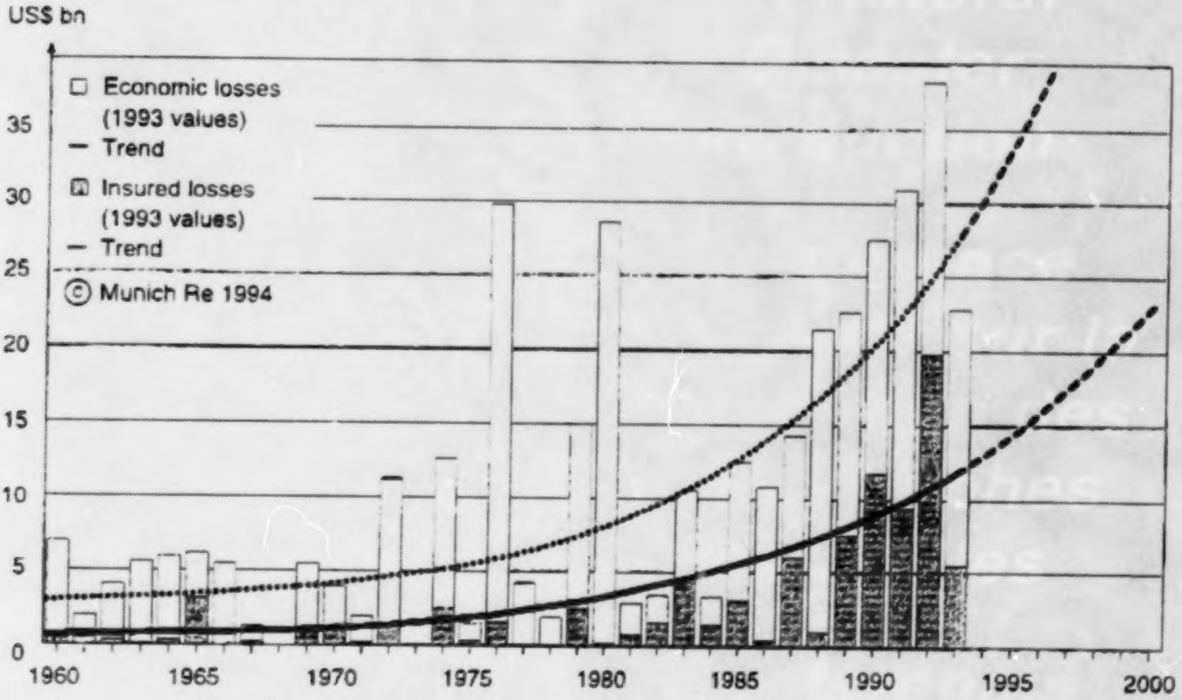
Date	Year	Event	Region	Deaths	Economic Losses US$ m	Rank	Insured Losses US$ m	Rank
23 - 26 August	1992	Hurricane Andrew	USA	74	30,000	1	16,500	1
Jan - Feb	1990	Winter gales	Eurpoe	230	15,000	2	10,000	2
Summer	1991	Floods	PR China	3,074	15,000	3	410	8
7 December	1988	Earthquake	Armenia	25,000	14,000	4	0	10
17 January	1994	Earthquake Los Angeles	USA	59	>13,000	5	>2,000	5
July - Aug	1993	Floods	USA	41	12,000	6	1,000	6
September	1989	Hurricane Hugo	Carib., USA	61	9,000	7	4,500	4
21 June	1990	Earthquake	Iran	40,000	7,000	8	100	9
27 - 28 Sept	1991	Typhoon Mireille	Japan	62	6,000	9	5,200	3
17 October	1989	Earthquake S. Fransisco	USA	68	6,000	10	900	7

Original figures, not adjusted for inflation

c Munich Re 1994

Great Natural Disasters 1960 - 1993

Economic losses and insured losses with trends



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Newsletter

STOP Disasters

The United Nations

INTERNATIONAL DECADE FOR NATURAL DISASTER REDUCTION

IDNDR Secretariat
Osservatorio Vesuviano

1990 - 2000

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EVALUATION
EVALUATION
EVALUATION

VORSORGE
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VORSORGE

WARNING
WARNING
WARNING
WARNING

World Conference on Natural Disaster Reduction

Conférence Mondiale sur la Prévention des Catastrophes Naturelles

Conferencia Mundial sobre la Reducción de los Desastres Naturales

Number 17 / January - February 1994 / ISSN: 1018-0850

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The United Nations Mobilize People Around the World to Reduce the Impact of Natural Disasters

Boutros Boutros-Ghali
United Nations Secretary-General

The International Decade for Natural Disaster Reduction (1990s) was proclaimed in 1989 by the General Assembly to bring about a reduction in loss of life and damage to property resulting from natural disasters. Since the launching of the Decade, a Special High-Level Council (a body of 10 internationally renowned personalities), a Scientific and Technical Committee (a group of 24 scientists drawn from around the world), and national committees for the Decade (currently numbering 120), have been working with the Department of Humanitarian Affairs and a United Nations inter-agency working group for the promotion of the Decade and the formulation and implementation of Decade programmes.

Programmes have been launched to improve disaster preparedness in more than 70 countries.

> ***... the Conference will allow practitioners and policymakers in disaster-prone countries to exchange experiences, gather new ideas and be encouraged to take the necessary actions to protect their peoples from the devastation of natural disasters***

Among the objectives of this important Conference are to review the accomplishments of the International Decade for Natural Disaster Reduction (1990-2000) at the national, regional and international levels, and exchange information on the implementation of Decade programmes and policies.

A large number of UN agencies, governments and other institutions around the world have worked hard to make the Conference a success. The Conference follows up issues raised in the 1992 UN Conference for Environment and Development. It will influence the work of the United Nations in such fields as climate change, population growth, technological accident prevention and many others.

In addressing natural disaster reduction, we address the most important challenges of the 1990s: the environment, health, and socio-economic development.

In this Decade of intense political, social, economic and demographic change, countries look to the United Nations as never before for leadership on complex issues. Managing disasters is one such issue. The vast increase in the number of conflicts, and massive population displacement, have necessitated unprecedented levels of humanitarian assistance.

At the same time, the United Nations must continue to take the lead in mobilizing people around the world to reduce the impact of natural disasters. It would be easy to postpone such efforts, at a time when civil conflicts, environmental degradation, mass migration, economic constraints and other concerns press upon us. Yet to postpone action today is to heap up even greater problems for tomorrow.

The link between natural disasters and the issues of development and the environment deserves greater attention. No country is safe from natural disasters, and the impact of disasters continues to rise. In constant (1990) dollars, the cost of disasters has tripled in the last thirty years: in the 60s, disasters cost $40 billion; in the 70s, $70 billion; in the 80s $120 billion. Without disaster reduction measures, the cost will rise to at least $280 billion in the 1990s.

Scientists predict that, because of climate change and rapid population growth, many countries will be even more vulnerable to natural disasters in the years to come. We must also remember that action taken, or not taken, today, affecting the environment, migration, trade and industrialization, will affect tomorrow's natural disasters.

> ***I hope that the governments which provide humanitarian relief and development assistance will use the World Conference on Natural Disaster Reduction as an opportunity to discuss their concerns***

It is vital that each country commit itself to reduce the impact of natural disasters, and consequently to work towards sustainable development. But no village, no sector of society, no country can do that alone. Science, politics, economics and the vagaries of nature are linked in a way that requires us to address disaster reduction from an international perspective. That is why this

World Conference on Natural Disaster Reduction is so important. There is no better time to reassess how we can be proactive in making our environment healthier and safer for future generations.

For disaster-prone countries, for donor countries, and for the United Nations, I believe that this Conference is particularly timely.

First, *it is my hope that the Conference will allow practitioners and policymakers in disaster-prone countries to exchange experiences, gather new ideas and be encouraged to take the necessary actions to protect their peoples from the devastation of natural disasters. Such actions include comprehensive vulnerability and risk assessments as part of development plans; national and local disaster mitigation plans, which include disaster prevention measures, preparedness programmes and community awareness programmes; and disaster warning systems. Only in this way can communities gain the necessary self-reliance to manage disasters and work towards sustainable development.*

Second, *I hope that the Governments which provide humanitarian relief and development assistance will use the World Conference on Natural Disaster Reduction as an opportunity to discuss their concerns. Many disaster mitigation practitioners firmly believe that sustainable development is not possible unless disaster reduction measures are incorporated into the finance and administration both of development projects and of humanitarian relief.*

Third, *I urge all UN agencies to use the World Conference as a spring-board to reassess their disaster reduction strategies, within the context of national development programmes of disaster-vulnerable countries.*

Finally, I wish those attending the World Conference on Natural Disaster Reduction all success in their deliberations

Boutros Boutros-Ghali

List of National Committees / Focal Points for the IDNDR

• • 122 countries (January 1994) • •

- Afghanistan
- Albania
- Algeria
- Angola
- Antigua and Barbuda
- Australia
- Austria
- Bahamas
- Bahrain
- Bangladesh
- Barbados
- Belgium
- Belize
- Bermuda
- Bhutan
- Bolivia
- Botswana
- Brazil
- British Virgin Islands
- Brunei Darussalam
- Bulgaria
- Burkina Faso
- Canada
- Central African Republic
- Chad
- Chile
- China
- Colombia
- Cook Islands
- Costa Rica
- Cuba
- Former Czechoslovakia
- Denmark
- Dominica (Commonwealth of)
- Dominican Republic
- Ecuador
- Egypt
- El Salvador
- Ethiopia
- Fiji
- Finland
- France
- Gambia
- Germany
- Greece
- Guatemala
- Guinea Republic of
- Haiti
- Holy See
- Honduras
- Hungary
- Iceland
- India
- Indonesia
- Iran
- Ireland
- Israel
- Italy
- Ivory Coast
- Jamaica
- Japan
- Jordan
- Kazakhstan
- Kenya
- Korea (Republic of)
- Kyrghyzstan
- Liechtenstein
- Luxembourg
- Malawi
- Malaysia
- Maldives (Republic of)
- Mauritius
- Marshall Islands (Republic of)
- Mexico
- Mongolia
- Montserrat
- Morocco
- Mozambique
- Nepal
- Netherlands
- New Zealand
- Nicaragua
- Niger
- Nigeria
- Norway
- Palau
- Panama
- Paraguay
- Peru
- Philippines
- Poland
- Portugal
- Puerto Rico
- Qatar
- Russian Federation
- Saint Kitts and Nevis
- Saint Lucia
- Saint Vincent and the Grenadines
- Senegal
- Solomon Islands
- South Africa
- Spain
- Sudan
- Sweden
- Switzerland
- Tanzania
- Thailand
- Trinidad and Tobago
- Tunisia
- Turkey
- Turks and Caicos Islands
- Union of Myanmar
- United Kingdom
- United States of America
- Uruguay
- Vanuatu
- Venezuela
- Vietnam
- Western Samoa
- Former Yugoslavia
- Zaïre
- Zimbabwe

Japan to Host the World Conference on Natural Disaster Reduction

His Excellency Mr. Morihiro Hosokawa
Prime Minister of Japan and President, Japanese Government Headquarters for the IDNDR

As the International Decade for Natural Disaster Reduction (IDNDR) enters its fifth year, I would like to take this opportunity to offer a few thoughts on this timely and important subject.

In the course of history, natural disasters have caused countless deaths and injuries and wrought great damage to property. Even today, as we approach the 21st century, natural disasters such as storms and floods, earthquakes, tidal waves, and volcanic eruptions still threaten the lives of people, and wreak social and economic devastation. This is said to be attributable to an increased vulnerability to natural disasters caused by rapid urbanization, particularly in developing countries, and also to environmental changes that recently have been accelerated around the world.

One of the greatest responsibilities our generation shoulders is to make the earth as safe and comfortable as possible to live in for those who will come after us, the people of the 21st century. We need to become more keenly aware that natural disasters transcend national boundaries and should therefore be addressed as an issue that affects all humankind.

The World Conference on Natural Disaster Reduction will provide an important opportunity for the international community to promote this idea and to make further efforts to mitigate natural disasters. It is significant that it is to take place in our country, as it has made such great efforts to cope with the threat, and reality, of natural disasters.

Japan has been subject to a range of disasters, including in particular earthquakes and typhoons. Among those that have beset us recently, are a volcanic eruption at Mt. Unzen, where evacuation of the population is continuing, and, in 1993, a great earthquake followed by a tidal wave in northern Japan and intense rain in the south. Drawing on our bitter experiences, we are engaged in constant efforts to mitigate the damage these disasters cause, and thanks to these efforts, the number of casualties they have inflicted has been greatly reduced. We have come to understand that it is possible to prevent natural disasters or at least limit destruction by taking appropriate countermeasures.

In recent years, unfortunately, natural disasters have occurred in many parts of the world and nowhere more than in developing countries. This may be partly due to the fact that in developing countries, where food production and industrial development are given high priority, it is difficult to devote adequate resources to disaster prevention. However, large-scale natural disasters completely negate long-term development efforts and their economic and social repercussions are very serious, especially in developing countries. It is necessary, therefore, that these countries pay due attention to disaster issues and that industrialized countries and international organizations, including the United Nations, assist them in doing so. The IDNDR can make a great contribution in this respect. And we have the emphasis Secretary-General Boutros-Ghali has placed on the importance of disaster prevention in "An Agenda for Peace," which he issued in 1992.

Through our own experience, we have gained a wealth of knowledge about disaster mitigation, and hope to share it with other countries. To this end, Japan is actively extending technical assistance to developing countries and promoting international exchange, in accordance with "The Basic Policy for Promoting Activities for the IDNDR" adopted by the Government Headquarters for the Decade.

The period of ten years may be too short to reduce the number of natural disasters that batter the world. The world remains highly vulnerable, and the path to greater security is strewn with difficulties. However, we must bring all our wisdom to bear on the problem of disaster mitigation, and be prepared to persevere.

It is my sincere hope that the coming World Conference will be productive, and that it will mark an important step toward creating a safer world. As host country, Japan will make every effort to ensure the success of the Conference.

In closing I would like to express my respect for all the people around the world who are engaged in disaster reduction efforts, and assure them that in the years to come, Japan will contribute even more actively to the activities of the IDNDR.

Systematic Prevention Programmes Can Reduce Natural Disasters

His Excellency Miguel de la Madrid Hurtado
Chairman of the Special High-Level Council for the IDNDR

In recent years the United Nations has been engaged in advancing the work of the International Decade for Natural Disaster Reduction. It has rightly concerned itself with promoting and supporting the various national programmes related to prevention and reduction of the effects of natural disasters.

Natural disasters have become a cause for serious concern to various communities because their negative effects are ever more destructive and costly. The number and complexity of emergencies have increased alarmingly.

Loss of life and property damage constitute a serious disruption for the communities which suffer from them and are serious obstacles to sustainable development; it has rightly been said that the destructive effects of droughts, floods, earthquakes and cyclones equal or even exceed those of wars and civil conflicts.

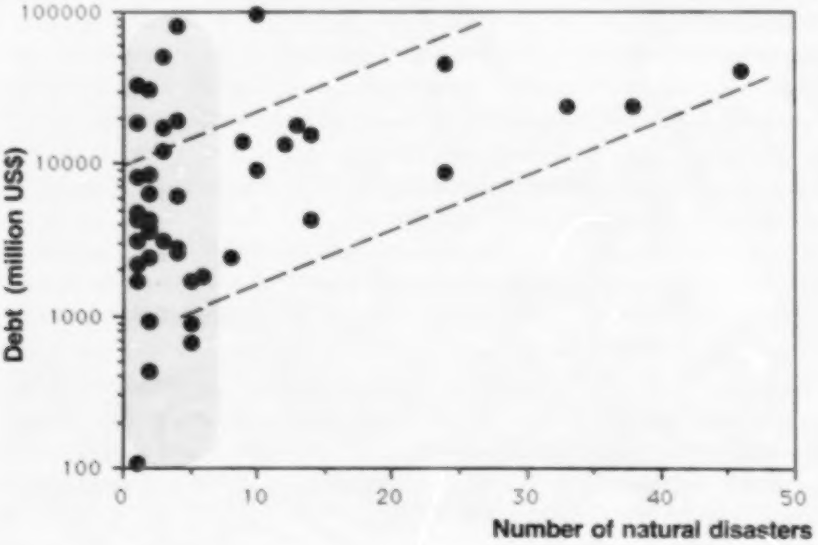
The effects of natural disasters can and must be foreseen and mitigated. This is possible through systematic prevention programmes and adequate organization of communities and governments. Action should be taken mainly at the local level, but could be strengthened through international cooperation programmes.

This is why the United Nations Decade for Natural Disaster Reduction is of such vital importance. Through the exchange of scientific and technical knowledge and information and on experiences available in different countries, it is possible to organize concerted action at the world level.

The forthcoming World Conference on Natural Disaster Reduction which will be held in Yokohama, Japan, from 23-27 May 1994 will be an important stage in these efforts. The achievements of the programme at the national, regional and international levels will be reviewed; the action programme for the future will be given fresh impetus; information on the implementation of various national programmes and the international programme will be exchanged; and, lastly the conference will be a strong stimulus to increasing public awareness of the need for action in this area.

All this enables us to look forward to an important and successful Conference for the good of mankind.

How People's Welfare Can be Affected by Natural Disasters



The graph shows evidence that the long-term debt in some countries has been strongly affected by the number of natural disasters that have occurred. (dots between the dashed lines) The relation is not so clearly demonstrated in other countries (dots on the shaded area), which experience fewer natural disasters

Supporting National and Regional Action to Reduce the Impact of Natural Disasters

Jan Eliasson
UN Under-Secretary-General
for Humanitarian Affairs

The fundamental fact underlying the General Assembly's decision to declare the International Decade for Natural Disaster Reduction (IDNDR) in 1989 remains as valid today as it was then. Given the scientific knowledge and the availability of technology that can avert catastrophes and reduce the level of damage they cause, natural disasters continue to kill, injure and impoverish too many people. Previous editions of STOP Disasters have pointed out that the global cost of damages from natural disasters has risen dramatically in recent years. A look at the list of natural disasters since 1989 drives home the point that no region is immune from their effects. Destruction from natural disasters - regardless of the stage of development of the country in which they occur - represents lost investment of human and material resources, and setbacks for development. IDNDR has helped sensitize policy makers to the reality that communities, governments and businesses will face ever-greater losses from natural disasters unless they act together now to prevent and prepare for them. The technical structures established to pursue the objectives of IDNDR and the preparatory process leading to the Yokohama Conference have provided a practical framework for those concerned with reducing the impact of natural disasters to share their knowledge and experience. The international community counts on the participants at the Yokohama Conference to give added impetus and support to the work already under way. If the 12-point plan of action adopted by the Special High-Level Council of IDNDR is to work, and if the agreed goals of the Decade are to be achieved, policy-makers in governments, international agencies, non-governmental organizations and in private enterprise must integrate disaster mitigation into over-all strategies for development and must commit resources proportionate to the task.

> ***The humanitarian imperative to support prevention and preparedness to the maximum possible extent is equal to, if not greater than, the imperative to provide relief in a disaster's wake***

The humanitarian imperative to support prevention and preparedness to the maximum possible extent is equal to, if not greater than, the imperative to provide relief in a disaster's wake. Support by national governments and the international community for disaster mitigation plans in countries prone to disasters also makes good economic sense. The UN Department of Humanitarian Affairs (DHA) has a special responsability to encourage and provide technical support for national and regional efforts towards natural disaster reduction.

Preparedness and prevention are needed at both the national and international levels to avert disasters and mitigate their effects, and to ensure timely relief to those in need when disaster strikes. Since DHA's establishment in April 1992, incorporating the former Office of the UN Disaster Relief Co-ordinator, the Department has helped formulate technical programmes and channel external assistance to the 18 most disaster-prone countries. It has worked with other international organizations and NGOs to launch collective programmes for neighbouring countries with similar needs. Such programmes have encompassed more than 70 countries in Africa, the Andes, Asia, the circum-Mediterranean region and the South Pacific. DHA collaborates with its partners in the UN system and in the broader international community to improve early warning systems, to train in-country personnel and to strengthen standby arrangements for assessing and coordinating assistance in sudden-onset disasters. Efforts are being made to improve the existing UN capacity to manage the flow of information needed to anticipate, to determine and to deliver the assistance needed in the event of a humanitarian emergency arising from natural or man-made causes.

One of the most important developments in the course of IDNDR to date was the adoption by consensus of General Assembly resolution 46/182 in 1991. This resolution equipped the United Nations with policies that have helped sharpen the focus on IDNDR objectives. Among the guiding principles for the international humanitarian assistance endorsed by the Assembly was that governments and the international community should give special attention to disaster prevention and preparedness. The resolution marked a step away from the "band-aid" approach to international humanitarian assistance. By adopting it, member states acknowledged that economic growth and sustainable development are essential for prevention of and preparedness against natural disasters and other emergencies, and that there is a clear relationship between emergency relief, rehabilitation and development.

Resolution 46/182 also enhanced the existing United Nations machinery for promoting rapid, coordinated response by the United Nations system in humanitarian emergencies - be they natural disasters or "complex" emergencies such as those arising out of conflict situations. The UN Emergency Relief Coordinator and DHA work to improve the international response once a disaster has taken place. Equally important, and often simultaneous with relief assistance, is their task of advocating and supporting national and regional action to reduce the impact of future disasters.

The General Assembly Resolution 46/182 marked a step away from the "band-aid" approach to international humanitarian assistance

The value of preparedness, prevention and coordinated multilateral action was clearly illustrated in the international community's response to the Southern African drought emergency in 1992. The entire region was suffering from the worst drought in a century. Food production had been cut in half. Eighteen million people in ten countries were directly affected. Early warning and coordinated action by the governments of the region, the Southern African Development Community (SADC), the UN agencies, bilateral donors and NGOs prevented a catastrophe of enormous proportions. A consolidated regional appeal was prepared and issued by DHA in consultation with its operational partners; $700 million in assistance from the international community was mobilized. Humanitarian diplomacy opened South African ports for the delivery of food aid. The World Food Programme (WFP) coordinated transport and logistics. Four million tons of emergency food - five times the amount normally handled in the region - were imported and distributed. A major famine was averted. Tens of thousands of lives were saved. Perhaps hundreds of thousands, who might have left their homes to seek food and water, remained in their villages.

This experience illustrates themes of IDNDR which should stimulate discussion at Yokohama: first, that the cost of preventive action is lower - both in terms of human suffering and money - than waiting for the worst to happen, and then reacting; and second, that in order to address root causes and prevent emergencies, humanitarian assistance must support longer-term rehabilitation and development efforts by those immediately affected.

The extent to which leaders pursue sustainable development, and the strength of their support for steps to prevent and prepare for natural disasters are among the truest measures of their commitment to humanitarian principles.

On behalf of the Department of Humanitarian Affairs, I extend our thanks to the Government and people of Japan for hosting the Yokohama Conference and wish all participants in the World Conference a productive and stimulating exchange of knowledge.

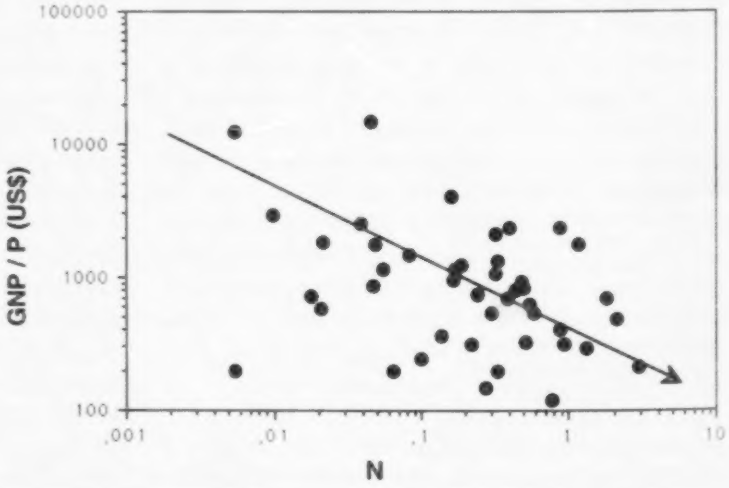
Jan Eliasson
31 January 1994

How People's Welfare Can be Affected by Natural Disasters

The graph shows the relation per capita GNP and N, the mean annual number of natural disasters experienced by each person in different countries during the period 1964-89. It shows the adverse effects of disasters on per capita GNP

The graphs on pages 6 and 8 have been prepared by Ken Sudo, Expert for IDNDR Projects, IDNDR Secretariat. Based on data from:

- *"An Assessment of Worldwide Disaster Vulnerability", by B.N. Heyman et al., Disaster Management, Vol.4, N.1, 1991, pp. 1-14.*
- *"Challenges for the IDNDR". UNCRD, 1990.*
- *CRED Disaster Events Database, CRED Brussels, Belgium.*



Yokohama Welcomes the World Conference on Natural Disaster Reduction

Hidenobu Takahide
Mayor of the City of Yokohama

The City of Yokohama will be the venue for the World Conference on Natural Disaster Reduction, which will take place on 23rd May, 1994.

In 1990 the City of Yokohama and the Japanese government hosted a national conference under the same theme and, drawing upon this experience, we hope to make a significant contribution in the field of disaster prevention.

Yokohama borders Tokyo and, with the second largest population in the country, is one of Japan's best known cities. Following the conclusion of the Japan-US Treaty of Amity and Commerce in 1858, Yokohama became Japan's gateway to the outside world, through which western civilization was introduced. In this way the infrastructure rapidly developed and shops owned by merchants from overseas lined the streets. Yokohama grew to become Japan's largest international trade city.

However, Yokohama has suffered and survived a number of severe hardships. In 1923 the city was devastated by the Great Kanto Earthquake, during the Second World War it came under air raid fire and subsequently had to pay reparations.

Due to the post-war baby boom the sharp population increase gave rise to a variety of urban problems.

Today, Yokohama is home to the largest China Town in Japan. In addition, an abundance of historic western-style architecture creates a unique atmosphere. At present, with international economics as a focal point, we are developing the Minato Mirai 21 area - the largest of its kind in the capital region. We are aiming towards rapid progress in the establishment of Yokohama as a venue for international conferences. The World Conference on Natural Disaster Reduction is particularly significant to us in marking the completion of the Yokohama International Conference Centre.

May I offer my sincerest wishes for the success of this Conference and, on behalf of our three million three hundred thousand citizens, I would like to extend a warm welcome to those of you visiting the City of Yokohama.

STOP **Disasters** Newsletter
THE UNITED NATIONS
INTERNATIONAL DECADE FOR NATURAL DISASTER REDUCTION

A bimonthly newsletter published by the
OSSERVATORIO VESUVIANO
Director Lucia CIVETTA
as a contribution to the
INTERNATIONAL DECADE for NATURAL DISASTER REDUCTION
written under the supervision of the IDNDR Secretariat
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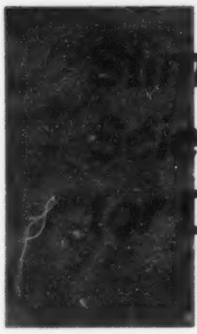
Layout designed by Armando Mauro



Stimulating Progress in Science and Technology for Disaster Reduction

Frank Press
Cecil and Ida Green Senior Fellow
Carnegie Institute of Washington
(Department of Terrestrial Magnetism)

The World Conference comes at the mid-point of the International Decade for Natural Disaster Reduction (IDNDR). It is appropriate that this gathering of experts and policy leaders take place in Yokohama, for Japan has played a leading role in the establishment of the IDNDR, in evolving technologies and public policies to cope with natural disasters, and sharing its knowledge and experience with other countries. It is also an appropriate time to take stock of the accomplishments of the IDNDR, and to offer mid-course corrections to make the final half of the Decade more productive in fulfilling its promise. The World Conference provides such an opportunity.

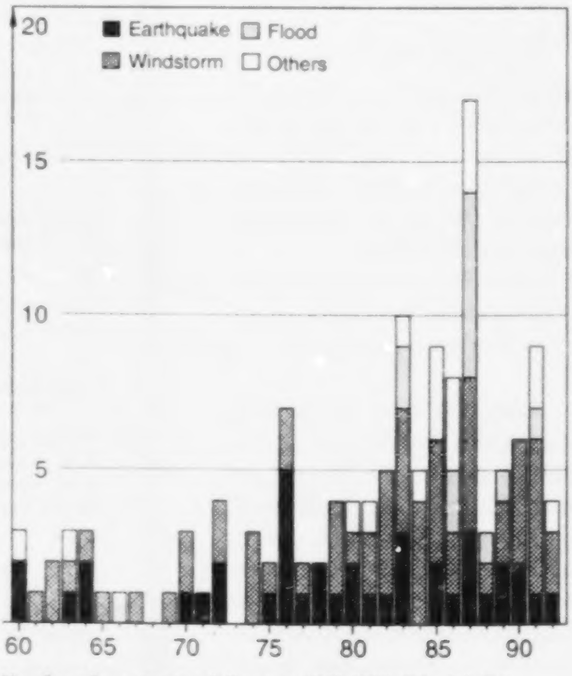
The aspirations of the scientists and engineers who conceived of the IDNDR, and the nations who secured its approval at the United Nations can be stated briefly:

It is possible to reduce significantly, human suffering and economic losses from natural disasters. This can be achieved by the appropriate use of the scientific and technological advances of recent years, by continued research to improve knowledge of natural disasters, by instituting programmes of training and sharing knowledge, and by raising the priority given to the mitigation of natural disasters by governments. These goals of replacing fatalistic attitudes by enlightened public policies that make use of advances in knowledge are worthy of humane societies and their political leaders. They are also cost effective in that the economic saving from disaster mitigation programmes outweigh the costs.

How far have we come in realizing these goals? By some measures the progress has been impressive. More than 100 nations have established national committees for disaster mitigation, some in countries where this was a first effort at addressing natural disasters before they occurred, and others in countries that recognized the need to improve organization and planning. In many countries disaster risk maps have been prepared for the first time, and public education programmes have been instituted.

There are several excellent examples of cooperation between nations. Access to early warning systems has been provided to several developing countries. Training programmes in technology and management have been organized and in some cases modern monitoring facilities have been installed. Some developed nations have improved their own capacities for warning, public education, communication, and coordination and have increased their research budgets.

However the culture of science and technology is one that fosters impatience with slow progress. IDNDR scientists and engineers also perceived the urgency of a situation in which the past twenty years saw increasing destructiveness of natural disasters due to population growth and concentration. About three million people worldwide have been killed, and that more than eight hundred million people have suffered homelessness, ill health, severe economic losses and personal tragedies. Therefore many scientists and engineers are disappointed that more has not been accomplished, primarily due to a lack of funds and inadequate attention by many governments. Hopefully the World Conference in Yokohama will stimulate more rapid progress.



Number of great natural disasters 1960-1992 (Munich Re)

1994: the Critical Year for the International Decade for Natural Disaster Reduction

James P. Bruce
Chairman of the Scientific and Technical Committee

Several events in 1994 will make it the critical year in determining the success of the Decade for Natural Disaster Reduction. Accomplishments to date are very modest when seen in the light of rapidly rising human and economic losses due to natural disasters. A major shift in national and international priorities must take place in 1994 if the critical needs for disaster loss reduction are to be achieved before the end of the Decade.

The World Conference on Natural Disaster Reduction, Yokohama, May 1994, marks a turning point for the Decade and for world-wide efforts at disaster loss reduction. To date, with extremely limited resources available to committees and Secretariat of the Decade, reliance has been placed upon the goodwill cooperation of national governments, the UN family of agencies, the scientific community, non-governmental organizations, and the private sector. All of these have contributed to the successes to date, because of a strong sense of commitment to the cause of disaster mitigation. They recognize that a great deal can be done to reduce human and economic losses from disasters, and indeed must be done, if sustainable economic and social development is to be achieved.

What are some of the collective accomplishments to date?

1. The establishment of 128 national committees/focal points for IDNDR, and the development of active, broadly-based programmes in many countries.
2. Mobilization of a significant scientific effort through IDNDR projects, a number of which are already leading to improved prevention and response strategies and more effective warning systems.
3. Definition and acceptance of targets for the Decade. (see box on page 12)
4. Some increase in public awareness of disaster mitigation possibilities and benefits and better communication world-wide through STOP Disasters.
5. Increased regional cooperation.
6. A great number of diverse activities undertaken spontaneously in all parts of the world, in response to the UN's declaration of the 90's as the Decade for Natural Disaster Reduction.

However, these and other achievements have been modest, at best, in the face of rapidly growing disaster losses. It has been estimated that total economic losses in 1992 (and probably again in 1993), due to natural disasters, exceeded $60 billion, more than 10 times the annual losses of the 1960's (Munich Re). News media carry daily reports of disasters - floods, earthquakes, severe storms, volcanic eruptions, droughts, and stories of great human suffering as well as loss of life and enormous economic damages. The tragedy is that there is ample evidence that much of the human and property losses could be prevented by more vigorous programmes of disaster loss reduction. Efforts underway are obviously falling further and further behind in meeting the need.

What can be done? The World Conference May 1994, and the "mid term review" of the Decade in 1994, to be undertaken by nations through the UN General Assembly, provide a unique opportunity. This is the year when political, policy and management decisions are needed to greatly increase disaster loss reduction activities during the second part of the Decade.

Some of the most urgent needs are:

1. National:

All countries which have not formed broadly-based national IDNDR committees should do so in order to take stock of their present situation and put in place the needed programmes.

2. Financial:

a) A major increase in funding for public and governmental awareness on basic issues: how to build and site inexpensive disaster resistant houses and buildings; how to cope with drought; how to improve warnings and their dissemination; how to put in place preparedness systems to take advantage of warnings.

b) Significant additional funding for scientific and technical projects - carried to the demonstration stage - to reduce costs and improve efficiency of disaster mitigation measures.

c) A modest increase of funds for the Secretariat and international committees of the Decade to permit support and encouragement of the many partners, promote greater efforts at all levels, and ensure effective coordination.

3. Making connections between IDNDR activities and related international activities.

These include:

a) better coordination and/or integration of efforts to deal with man-made disasters (chemical spills, industrial accidents, etc.) and natural disasters.

b) working with the new UN Commission for Sustainable Development to ensure that developing countries and donors recognize that development in many regions cannot be sustainable without disaster loss reduction measures.

c) cooperation with the parties to the Framework Convention on Climate Change and the Intergovernmental Panel on Climate Change to determine the extent to which the rapid increase to disaster losses is due, or could be due in future, to changes in climatic extremes, and take appropriate adaptation or preventive measures.

4. Rehabilitation:

Take advantage of each disaster that occurs to re-build or relocate or re-design so that the terrible losses do not recur.

To achieve the Decade targets by the end of the 90's and thereby significantly reduce disaster losses, requires changes in national and international priorities and direction. Let us work to ensure that these changes are made in 1994, beginning in Yokohama.

James P. Bruce

SPECIFIC TARGETS FOR THE DECADE

National assessments of risks:

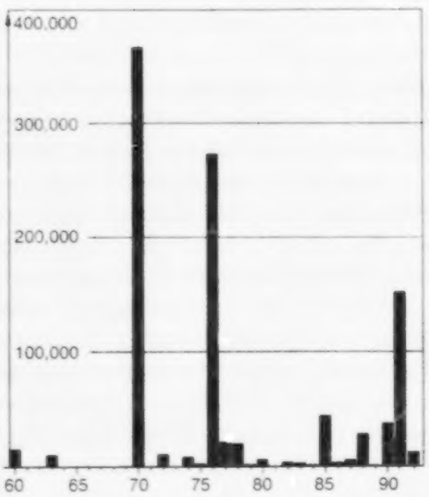
- *Overall identification of those natural hazards which pose a disaster threat;*
- *For each type of hazard threat, an evaluation of the geographic distribution of the threat (usually in the form of maps) and estimates of its recurrence interval and impacts;*
- *Assessment of vulnerability of the most important concentrations of population and resources.*

National and/or local prevention and preparedness plans:

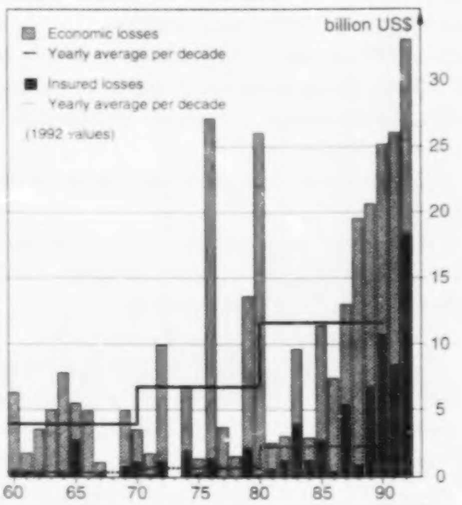
- *Adoption of land-use and construction practices to resist or avoid hazards;*
- *Adoption of emergency-response plans that identify responsible organizations, hazard scenarios and essential actions;*
- *An awareness programme to educate people on the nature of the threat, including a training component (for responsible personnel);*
- *Concrete measures to mitigate damages and to increase resilience to hazards.*

Global, regional, national and local warning systems:

- *For each type of hazard threat, a monitoring and, if possible, prediction system capable of forecasting and detecting threatening phenomena in time to initiate actions to avert or reduce impacts;*
- *Communication systems to disseminate warnings;*
- *An enhancement of the perception of hazards by responsible authorities.*



Casualties produced by great natural disasters 1960-1992 (Munich Reinsurance Company)



Economic losses / Insured losses produced by great natural disasters (Munich Reinsurance Company)

Drawing Lessons from the Past to Build the Future

Michel Lechat
Member STC,
Chairman, Preparatory Committee, World Conference

Yokohama, May 1994, the World Conference is getting nearer and nearer. There, at the invitation of the Government of Japan, in a couple of months the largest forum ever to be held on natural disaster reduction will take place.

The main aims of the Conference will be to review the Decade accomplishments at mid-term and to chart a programme of action for its second half. It should at the same time be a postscript and a preface, drawing lessons from the past to build the future.

Participants of all venues and from all over the world will converge to exchange information and compare experiences in disaster prevention and mitigation. The programme will include a global and regional review of IDNDR activities based on national reports, focussing on the targets of the Decade, namely setting up comprehensive national assessment of risks from natural hazards, establishing mitigation plans involving long-term prevention and preparedness as well as community awareness, and providing access to effective warning systems.

Highlights of relevant research will also be presented at a number of topical sessions, with the specific purpose of demonstrating to policy-makers how science and technology may bring a determinant contribution to disaster reduction.

Japan, one of the most disaster-prone countries in the world and one of the best prepared, is a convincing example of how to live in an environment exposed to a large variety of natural hazards. The generous offer of the Japanese Government to host the World Conference in Yokohama will no doubt contribute to disseminating the general message of the Decade - that reduction of natural disasters is possible.

Not only is reduction possible, it is also an imperative for long term development. The enormous economic consequences of natural disasters and the huge cost of relief compared to prevention, makes reduction of disasters a condition for sustainable development.

Natural disasters can no longer be isolated and dissociated from environmental degradation. These considerations stretch somewhat the Decade. Plans will have to be prepared far beyond the Year 2000.

The world has also changed since, following an initiative of the scientific community in 1984, the General Assembly in successive steps has moved to proclaim the Decade in 1989. What is modestly called complex emergencies are now overwhelming the international capacity for assistance. There are so many tragedies in today's world that there is a risk that natural disasters might lose the attention they deserve. However, as told by the UN Secretary General in his address to the IDNDR Special High-Level Council in January 1993: "*There is no hard and fast division - in terms of their effects on civilian populations - between conflicts and wars, and natural disasters. Drought, floods, earthquakes and cyclones are just as destructive for communities and settlements as wars and civil confrontation*".

This important statement dissipates possible ambiguity and should be relayed and amplified.

Yokohama will be a platform to demonstrate, to convince and to maintain momentum, as well as an arena to stimulate interaction, to develop partnership and to learn from each other.

In order to achieve this goal, the Preparatory Committee has received great support for its work in the IDNDR Secretariat, in close liaison with the Special High Level Council, the Scientific and Technical Committee of the Decade, the host government, the Inter-Agency Working Group of the UN, and the representatives of the National Committees and scientific and non-governmental agencies. All together, these bodies represent a microcosm of the diversity and interdisciplinarity which should make of the World Conference a success, on the way to "A Safer World for the Twenty-First Century".

Evacuation drill against the Coming Tokai Earthquake, Shizuoka, Japan. School Children wear a yellow hood called "bosai-zukin". They always carry it and, in the class room, use it as a cushion on a chair. By courtesy of Shizuoka Prefectural Government, Japan

Making Disaster Reduction a Priority in Public Policy

Olavi Elo
Director, IDNDR Secretariat

In 1992, the world economy lost more money from natural disasters than it spent on development aid. Yet economic losses are only part of the story. No one really estimates the social, political and psychological cost of disasters on a community. Disasters can wipe away lives, homes, businesses and change the fate of a community for decades.

With rapid population growth, environmental degradation, climate change, pockets of poorly regulated industrialization, and continued economic uncertainty, chances are that communities may become more vulnerable - not less - to disasters.

> **Disaster reduction measures need to become part of the process of protecting our investment in sustainable development, not simply an additional cost**

We have a ten-year opportunity to focus our efforts on reducing the devastating impact of disasters through the International Decade for Natural Disaster Reduction.

International decades come about because a global problem is not being resolved. Death, injury and property damage from natural disasters continues to rise. Years of disaster research show that disasters can be successfully prevented and prepared for. Yet the dramatic losses in recent years from floods, drought, volcanic eruptions, earthquakes and cyclones attest that we are still a long way from applying even the knowledge we have today to make communities safe.

The work of disaster management - before, during and after disasters - is very fragmented. Engineers do not usually work with health planners. Business executives do not usually work with UN officials. Civil defence leaders do not usually team up with educators. One of the aims of the International Decade for Natural Disaster Reduction is to help these very diverse partners work together to stop disasters.

In 1989, the UN General Assembly asked for a decade of "concerted international action" for disaster reduction. In six years, the IDNDR will draw to a close. If IDNDR is to succeed in making disaster reduction part of the way the world lives and works in the 21st century, it must mobilize groups the world over to convince policymakers that disaster reduction is a worthwhile investment.

The World Conference on Natural Disaster Reduction, which will take place from 23-27 May in Yokohama, Japan, will reveal the extent of progress we have made and where we should go in the future.

The World Conference helps in focusing action for disaster reduction. The Conference is not only an event, but an important milestone in the Decade. The links between disasters and technology, environment, population, industrialization, poverty, the economy and governance are all on the agenda for the World Conference.

The IDNDR Secretariat has made great strides in preparing a conference based on "concerted international action". UN agencies, scientific associations, non-governmental organizations and development banks have assumed major responsibilities in organizing the World Conference. Regional and national organizations the world over are using the conference as an opportunity to take stock of how they deal with natural disasters and evaluate what needs to be done to give disaster reduction policies the attention they deserve in the latter half of the decade.

Today IDNDR places more emphasis than before in two areas. First, to help developing countries and regions build their capacities to cope with disasters. Second, to promote disaster reduction at a macroeconomic and political level with legislators, key environmentalists and economists, development planners, relief managers, relief and development aid officials. They, in turn, can persuade, mandate, fund and mobilize their networks to undertake disaster mitigation, prevention and preparedness.

> **Disaster reduction is vital to protect our environment and safeguard our investments in development**

Among the most important partners in the work of the

"Decade" are the IDNDR National Committees and Focal Points in over 100 countries around the world. If we want the message of disaster reduction to extend beyond the 1990s, we must find ways to revitalize IDNDR National Committees. There are several National Committees which have used the Decade as an opportunity to launch new programmes, sensitize decision makers and educate the public. But most National Committees are not functional, or have only marginal policy-making status in their countries. Unless these committees can be made more effective, we will need to develop new channels for country level action.

Making disaster reduction a priority in public policy is essential if we want a safer, healthier and more productive world in the 21st century

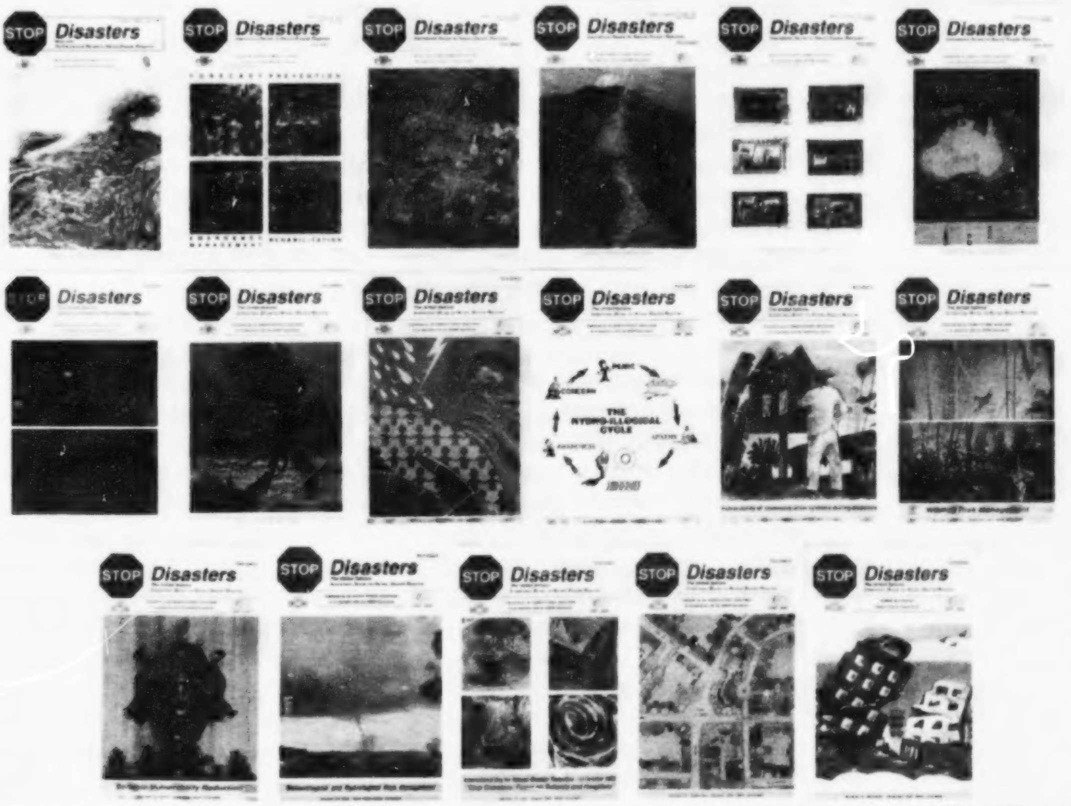
Using humanitarian relief operations as a starting point for disaster mitigation is only one side of the coin. Integrating disaster mitigation in socio-economic planning and development is the other. If we really want to take action to stop disasters, we must make the world's leaders aware that disaster reduction should not compete for attention with problems of environmental degration, migration, economic recession and poverty - it should be part of the solution. In the medium term, we need not work and spend more - just differently.

Disaster mitigation is the most effective way to link disasters and development. In the 90s, though, we need to lay the groundwork to make this vision a reality. Unless national planning ministries and aid organizations recognize that, at least for now, disaster reduction needs some financial commitment that is independent from relief or development, real political commitment will remain marginal and broad scale change will be unlikely. It is up to all of us with an interest in disaster reduction to make these messages clear at the World Conference, and build on them through the 90s.

Disaster reduction measures need to become part of the process of protecting our investment in sustainable development, not simply an additional cost. For disaster reduction to truly succeed, people from all walks of life must become aware that disaster reduction is vital to protect our environment and safeguard our investments in development.

Disasters contribute to the major world concerns on the agendas of national and international leaders of the 90s. Making disaster reduction a priority in public policy is essential if we want a safer, healthier and more productive world in the 21st century.

Olavi Elo



The Chairman's Summary Report on the Fifth Session of the IDNDR Scientific and Technical Committee

Geneva, 22-24 November, 1993

1. Introduction

The Fifth Session of the STC focused on three main matters:

- Programme development since STC Four (New Delhi - February 1993);
- Preparation for the World Conference on Natural Disaster Reduction, Yokohama, 23-27 May, 1994; and
- Preparation of the mid-term review of the Decade, a report requested by the United Nations for the 1994 General Assembly.

The Secretariat under Dr. Olavi Elo had prepared a consolidated report on Programme Development and the World Conference which greatly assisted in focusing the discussions. As well, specific information papers from international agency partners in the Decade reported both on their disaster mitigation progress and on their preparation of Topical (Technical) Sessions at the World Conference. Participants in the meeting included present STC members; some invited guests who have been nominated as new STC members but are awaiting formal confirmation, UN and international agency representatives; and a number of national representatives.

2. Progress in Programme Development - Highlights and Problems

2.1 Public Information:

It has been difficult to pursue the STC-agreed public information strategy due to lack of funds. However, IDNDR Day, 13 October continues to be a focus of many national and international public information events, including in 1993 recognition by CNN television.

With circulation at 15,000, the Newsletter STOP Disasters has been a major success in providing linkages and communication between countries. Arrangements have been made for a fifth language version in Russian. The Pan American Health Organisation has assisted with distribution of 4,000 copies in Latin America.

Public information efforts in 1994 will concentrate on publicizing the World Conference and its outcome.

2.2 Information systems and technology:

The Secretariat was asked to take steps (with several STC members) to better coordinate the several efforts underway to improve disater statistics and technologies for assisting disaster mitigation (remote sensing, GIS, etc.). This work will be undertaken in collaboration with the Disaster Mitigation Branch, DHA, which has now been combined with the IDNDR Secretariat.

2.3 Private Sector involvement in IDNDR:

The STC welcomed the appointment of a Secretariat Officer (Italy) to liaise with private sector interest groups and agreed to initiate an advisory group to the Secretariat and STC, with initial emphasis on private sector involvement in the World Conference.

2.4 Economic Aspects of disaster mitigation:

With the global economic costs of disasters continuing to rise rapidly to over $60 billion in 1992 (Munich Re), increased attention must be directed towards case studies and cost/benefit analyses to demonstrate the value of prevention, warnings and preparedness. It is hoped that the U.S. National Academy of Sciences/World Bank led session on this topic at the World Conference will help set the course for more intensive efforts.

2.5 National Committee:

119 National Committees and Focal Points for the Decade have now been designated. However, of the 47 least developed

Fifth Session of the IDNDR STC

countries throughout the world, only 23 are participating in the Decade. Most committees and focal points are actively preparing national reports for the World Conference, assessing their country's progress in achieving the Decade Targets and charting a programme for the second part of the Decade.

2.6 Regional Activities:

Regional IDNDR Conferences were reported on for the S.W.Pacific (Commodore C. Littleton, Australia), Caribbean (Ms. Helena Molin Valdes - IDNDR officer, Costa Rica), and Europe (Professor M.Lechat, Belgium). Plans for major regional conferences 26-27 November (Addis Ababa) and 21-24 March (Colombia) were outlined.

2.7 Disaster Mitigation Branch (DMB) Projects:

With the Disaster Mitigation Branch of DHA having been brought together with the IDNDR Secretariat, a review was given of DMB projects in 12 countries or groups of countries.

2.8 International Demonstration Projects and IDNDR Projects:

Reports from the Secretariat on the 36 international projects were presented by the Secretariat. A report of the STC's Subcommittee on Projects (Chairman, Dr. R. L. Kintanar, Philippines) indicated endorsement on behalf of the STC of 11 new IDNDR international projects during 1993. The STC was advised that more than 500 persons from 112 countries participated in project workshops in 1993, and 21 publications on these international projects were issued. Thirty-eight training courses reached more than 400 trainees from 28 developing countries. STC Members and the Secretariat will take a more active role in seeking funding for underfunded international projects. National and Regional IDNDR technical and training projects were growing in number, and it was urged that all countries register their projects with the IDNDR Secretariat.

2.9 UN Conference on Environment and Development (UNCED) follow-up:

Several initiatives were noted which recognize disaster mitigation as a key to sustainable development in many countries. The German government will be sponsoring in Berlin, 25-28 January 1994, a workshop on guidelines for development projects to reduce rather than increase disaster vulnerability. The Organisation for Economic Cooperation and Development (OECD) continues to work on this issue, and the UN Conference on Sustainable Development of Small Island States will consider a document on this topic. The UN's Commission for Sustainable Development should be encouraged to take up this topic as part of the follow-up to Agenda 21. At the same time, work on the Framework Convention on Climate Change, expected to come into force with sufficient numbers of ratifications by about the end of 1993, and in the Intergovernmental Panel on Climate Change, are focusing attention on response to, and adaptation to climatic extremes (storms, floods, droughts), closely related to IDNDR goals.

3. World conference on Natural Disaster Reduction, Yokohama, 23-27 May 1994

3.1 Arrangements and Status:

Dr. Elo reported on negotiations both at the UN New York and with the host country, Japan. The outcome appears to be very promising, with a widely-backed UN Resolution having been approved by Second Committee, and now (early December 1993) under consideration in the General Assembly, designating the Conference as a fully-fledged UN Conference. This will permit full support of UN Conference Services and Public Relations staff and participation at the highest levels of UN and Government. The host country is providing, in addition to facilities and costs of support of the Conference, for the attendance of a number of representatives of developing countries. However additional funds are being sought from donors for this purpose and to assist in the preparatory process. An Intergovernmental Preparatory Committee meeting will now be required and will be held in Geneva in March 1994.

3.2 Programme:

Professor Lechat, Chairman of the STC's Technical Preparatory Committee reported on planning for the Conference sessions. There will be a series of Plenary sessions for brief national presentations by Ministers and very senior officials. Concurrently, there will be a series of 1/2 day Technical Committee and Main Committee sessions. For these latter two types of sessions, international organizations have agreed to take responsibility for organization and assembly of appropriate speakers and panellists. The goal is to demonstrate forcefully the benefits, in saving lives and property damage, through various kinds of disaster mitigation activities.

3.3 The Technical Committee Sessions will be as follows:

- Vulnerable Communities (islands, children, etc.) - International Federation Red Cross/Red Crescent Societies (IFRC), United Nations Children Fund (UNICEF).
- Warning Systems - World Meteorological Organization (WMO), United Nations Educationsl Scientific and Cultural Organization (UNESCO).
- Hazard Resistant Structures - International Council of Scientific Unions (ICSU), UNESCO, World Federation of Engineering Organizations (WFEO)/Union of International Technical Associations (UITA).
- Economic Benefits - World Bank/U.S. National Academy of Sciences.
- Drought Management - Food and Agriculture Organization (FAO), UNESCO, WMO.
- Inter-relationship between Technological and Natural Disasters - UN Environment Programme (UNEP)
- Modern Societies (Megacities-Technological Developments) - UN Centre for Regional Development (UNCRD), UN Centre for Human Settlements (HABITAT).

3.4 Main Committee Sessions will feature:

- Regional Reports and Cooperation - Pan American Health Organization (PAHO) and partners,
- Private Sector Involvement - World Health Organization (WHO) and partners.

3.5 In addition there will be:

(i) Rotating Poster Sessions on IDNDR projects and other technical activities; organized by UNESCO;

(ii) An exhibition hall for national displays,

(iii) A display of children's art on disaster mitigation from national competitions.

3.6 A luncheon workshop was held on the possible contents of a Yokohama Statement which yielded many valuable ideas to carry to the Conference. The major outcome is expected to be programme guidelines for the second half of the Decade, along with a consensus on the best means of achieving Decade Targets.

4. Mid-Term Review of the Decade

The UN General Assembly has required a mid-term review, to be submitted through the UN Economic and Social Council (ECOSOC), for the General Assembly session in autumn 1994. It is hoped that the Yokahama Conference will provide a substantial part of this review. However, so that it can be translated and reproduced in time for ECOSOC in July 1994 much of the review must be prepared before the World Conference, with the Conference Report being provided later as an annex.

The Secretariat will begin drafting the report in a way which provides for incorporation of the Conference Statement and outcome. A meeting of the STC is scheduled to take place in Yokohama immediately following the World Conference, to review the draft mid-term review report. The Special High-Level Council for the Decade is expected to meet in Yokohama just before the World Conference.

James P. Bruce
Chairman, Scientific and Technical Committee, IDNDR

• • Opportunities for Business • •

In occasion of the World Conference on Natural Disaster Reduction a *"Private Sector Special Digest"* will be published as an annex to the n.18 issue of STOP DISASTERS.

The Digest will include the names, addresses and profiles of Companies operating in fields related to disaster reduction, world-wide.

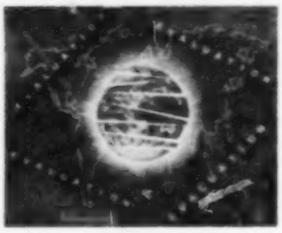
Application forms and information on the advertisement rates can be requested to

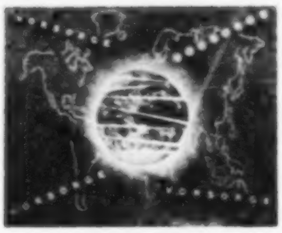
Francesco Pisano
IDNDR Secretariat
Tel.: 41-22-798 5850 / Fax: 41-22-733 8695

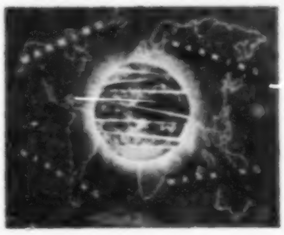
1994 Forthcoming Events

For additions and/or changes to calendar, please contact:
IDNDR Secretariat
Palais des Nations
CH-1211 Geneva 10 - SWITZERLAND
Fax: (41-22) 7338695

3 - 5 April ***Amman*** ***JORDAN***	**Xth Civil Protection World Conference** *ICDO, 10-12 Chemin de Surville, 1213 Petit-Lancy/Geneva. Tel.: (22) 793 44 33; Fax: (22) 793 44 28; Tlx: 423 786 CH*
5 - 7 April ***Victoria Island*** ***Lagos*** ***NIGERIA***	**International Symposium on Scientific and Socio-Economic Aspects of Environmental Hazards in the West African Sub-Region (Hazards'94)** *Hazards'94 Symposium Secr., Nigerian Academy of Science, Barikisu Iyede Street P.M.B. 1004, University of Lagos Post Office, Yaba, Lagos, Nigeria*
22 - 25 May ***Tianjin*** ***CHINA***	**International Symposium on Urban Disaster Reduction** *Seismological Bureau of Tianjin, Municipality, No. 19 Friendship Road, Tianjin 300201, China.*
23 - 27 May ***Yokohama*** ***JAPAN***	**WORLD CONFERENCE ON NATURAL DISASTER REDUCTION** *IDNDR Secretariat, Palais des Nations, 8-14 Avenue de la Paix, CH-1211 Geneva 10, Switzerland. Tel.: (4122) 7400377; Fax: (4122) 7338695.*
15 - 22 June ***Tehran*** ***IRAN***	**Regional Workshop on Natural Disaster Mitigation Strategies** *Dr. Borghei'S.M., Chairman Civil Engg, Sharif University of Technology, Tehran, I.R. Iran. Tel.: 6005818; Fax: 6012983*
17 - 20 June ***York*** ***ENGLAND***	**Institute's Annual Disaster Management Study** *Mr. Eric Alley, President Institue of Civil Defence and Disaster Studies "Farthings", Gembling, Driffield, North Humberside Y025 8HS, England*
20 - 22 June ***Helsinki*** ***FINLAND***	**Second European Conference on Environment and Health** *Dr. J.E. Asvall, Regional Director (Europe) WHO, 8 Scherfigsvej DK-2100, Copenhagen, Denmark. Tel.: (45) 39 17 17 17; Fax: (45) 39 17 18 18*
4 - 15 July ***Brussels*** ***BELGIUM***	**Fifth International Course on Health and Disaster Preparedness** *Dr. Debarati Guha-Sapir, Centre for Research on Epidemiology of Disasters; Catholic University of Louvain, School of Public Health, EPID - U.C.L. 30.34, 30, Clos Chappelle-aux-Champs, B-1200 Brussels (Belgium). Tel.: 322/7643327; Fax: 322:7643328; Tlx: 23722 UCL WOL.*
10 -14 July ***Chicago*** ***U.S.A.***	**5th U.S. National Conference on Earthquake Engineering** *Earthquake Engineering Research Institute, 499 14th Street, Suite 320, Oakland, California 94612-1902. Fax: (1) 510 451 5411*
11 July - 18 August ***Swindon*** ***ENGLAND***	**Counter Disaster Staff Training** *Director Cranfield Disaster Preparedness Centre RMCS, Shrivenham, Swindon, Wilts SN6 8LA. UK. Tel.: (793) 78287/785313; Fax: (798) 782179/783878; Tlx: 9312111378 HM G Ref WJJLL0*
22 - 26 August ***Brasilia*** ***BRAZIL***	**Seismological Regional Assembly in South America** *Regional Center of Seismology for South America (CERESIS), Lima (Peru). Tel.: 005114/336750; Fax: 005114/336750; Tlx: 20053 PE PB LIMTC*
28 August - 2 September ***Vienna*** ***AUSTRIA***	**10th Annual European Conference on Earthquake Engineering** *Dr. R G. Flesch, Austrian Association for Earthquake Engineering c/o Technische Universitat, Wien, A-1040 Wien Wiedner Haupstrasse 8-10/20, Austria*







World Conference on Natural Disaster Reduction

"A Safer World for the 21st Century"

Programme >>>

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Day	Plenary	Technical Committee	Scientific and Technical Poster Session
Monday, 23 May AM	Inaugural Session		
PM *Evening Reception*	Plenary	Committee A *Vulnerable Communities*	Session I *IDNDR International Demonstration Projects*
Tuesday, 24 May AM	Main Committee *Public & Private Sector Interface*	Committee B *Hazard-resistant Construction*	Session II *Information Systems and Technology (Including Early Warning)*
PM	Plenary	Committee C *The Effects of Disasters on Modern Societies*	Session III *Education*
Wednesday, 25 May AM	Main Committee *Regional Reports*	Committee D *Technological and Natural Hazards: Interrelationships*	Session IV *Health*
PM	Plenary or Main Committee *Regional Reports*	Committee E *Economic Aspects of Disaster Reduction for Sustainable Development*	Session V *Social Sciences*
Thursday, 26 May AM	Main Committee *Regional Reports*	Committee F *Warning Systems*	Session VI *Earth Sciences, Engineering and Architecture*
PM *Evening Reception*	Plenary	Committee G *Drought Management*	Session VII *Legislation, Regulation and Land Use*
Friday, 27 May AM	Plenary / Adoption of Statement		
PM	Closing Ceremony		

The International Decade for Natural Disaster Reduction Projects

International IDNDR Demonstration Projects

Project	Organisation	Area	Research field
• Drought Hazard Assessment, Famine Disasters and Vulnerable Food Systems	IGU/ICSU	Africa	Drought
• Global Seismic Hazard Assessment Programme (GSHAP)	ICSU	Global	Earthquake
• Earthquake Hazard Disaster Management in the Mediterranean Region (SEISMED)	UNDRO (DHA-Geneva)	Mediterranean	Earthquake
• Minimizing Earthquake Hazards	IASPEI	Global	Earthquake
• Reconditioning of Existing Housing to Mitigate Earthquake Effects	CERESIS / Germany	South America	Preventive Actions
• Tropical Cyclone Warning Systems for the South-West Indian Ocean Region	WMO	South West Indian Ocean Region	Tropical Cyclone
• Tropical Cyclone Disasters	WMO, ICSU	Global	Tropical Cyclone
• Reducing Volcanic Disasters in the 1990s	ICSU	Global	Volcano
• International Mobile Early-Warning System for Volcanic Eruptions	UNESCO	Global	Volcano
• Disaster Mitigation in Hospital facilities in Latin America and the Carribean	WHO	Carribean	Public Health
• Risk Mapping in Africa	WHO	Africa	Public Health
• Pan African Epidemic Preparedness	WHO	Africa	Public Health
• Strengthening Health Sector Disaster Preparedness and Response in Indonesia	WHO	Indonesia	Public Health
• International centres for Research and Training in Mitigation of Risks	(NGO)	Global	Research Centre
• System for Technology Exchange for Natural Disasters (STEND)	WMO	Global	Technology Exchange
• Training Materials for Natural Disaster Reduction	UNESCO	Global	Training
• Roving Seminar Educational Project; A Feasibility Study for a Pilot Experiment	UATI-WFEO	Global	Training
• Disaster Mitigation Training Programme (DMTP)	DHA-Geneva (UNDRO). UNDP	Global	Training

• The Physical Instability of Megacities	IAEG/IUGS	Global	Preventive Actions
• Megacities Protection and Construction	UATI-WFEO	Global	Preventive Actions
• Design of Structures to Withstand Earthquakes and/or Extreme Winds	UATI-WFEO	Global	Preventive Actions
• Comprehensive Risk Assessment	WMO	Global	Risk Assessment
• Disaster Statistics; Disaster History Database	DHA-Geneva (UNDRO)	Global	Information
• Database Network Development in Country Disaster Management Information System	DHA-Geneva	Global	Information
• IDNDR/UNDRO Terminology Project	IDNDR, DHA-Geneva	Global	Information

International, Regional (and National*) IDNDR Projects

• World Seismic Safety Initiative (WSSI)	IAEE	Global	Earthquake
• Floods and Storms: Bangladesh Case Study	UATI-WFEO	Bangladesh	Flood/Storm
• Natural Hazard Map of East Asia	GSI	East Asia	Risk Assessment
• The Lake Nyos (Cameroon) Hazard Reduction	UATI-WFEO	Africa	Lake Nyos
• Implementation of Available Know-How for the Protection of Non-Engineered Housing from Natural Hazards	(NGO-University)	Global	Preventive Actions
• Socio-Economic and Policy Aspects of Changes in Incidence and Intensity of Extreme Weather Events	Free University, Netherland	Global	Economic
• SUMA-A Supply Management Project in the Aftermath of Disaster in Latin America and the Carribean	WHO,PAHO	Latin	Public Health
• Community Emergency Preparedness Manuals	WHO	Global	Public Health
• International Emergency Readiness and Response Information System (IERRIS)	DHA-Geneva	Global	Information
• Atlas of Local Seismic Culture	European University Centre for Cultural Heritage (Ravello, Italy)	Global	Historical Heritage
• Earthquake Risk * Reduction in Ghana, West Africa	University of London, England	Ghana	Earthquake

World Conference on Natural Disaster Reduction

1990 - 2000

"A Safer World for the 21st Century"

Yokohama, 23 - 27 May 1994

Purpose

A World Conference On Natural Disaster Reduction, organized for the International Decade for Natural Disaster Reduction (IDNDR) and hosted by the Government of Japan, will be held in Yokohama from 23-27 May 1994.

The IDNDR was launched by a United Nations General Assembly resolution, adopted in December 1989, with the objective of reducing through concerted international action, especially in developing countries, the loss of life, property damage, and economic and social disruption caused by natural disasters, such as earthquakes, windstorms, tsunamis, floods, landslides, volcanic eruptions, wildfires, grasshopper and locust infestations, drought and desertification and other calamities of natural origin.

The results of the Conference will contribute to the mid-term review of the Decade in 1994 by the United Nations Economic and Social Council, as required by the General Assembly. The aims of the Conference are to:

- *review IDNDR accomplishments at national, regional and international levels;*
- *chart an action programme for the future;*
- *exchange information on the implementation of IDNDR programmes and policies;*
- *increase awareness of the importance of the progress of disaster reduction policies.*

Participation

Participation is anticipated to include government ministers and high-level officials, representatives of the over 100 National Committees and Focal Points for the Decade, representatives of regional and international organizations concerned with natural disasters, both governmental and non-governmental and other interested persons. An invitation is extended to all who are involved in Decade activities, including those from the fields of planning, finance, foreign affairs, health, science, engineering, civil defence, private sector, industry, insurance, media and emergency preparedness.

National Reports

Countries are requested to prepare national reports by the end of 1993 on their IDNDR-related activities, in particular, their efforts to achieve agreed targets for the Decade, and plans in the second half of the Decade to fully achieve these targets. Salient points from these reports will be summarized for presentation to the Conference, together with highlights of relevant international research and other demonstration projects.

Programme

The programme will feature global and regional mid-term review of IDNDR activities based on national reports. There will also be topical sessions.

The themes for the Topical Sessions and their organization, including both oral and poster presentations, will focus on strategies for disaster mitigation. The themes will address actions to achieve the targets within the framework of the overall programme for the Decade, as specified by the IDNDR Scientific and Technical Committee and adopted by the UN General Assembly. The targets are:

By the year 2000 all countries, as part of their plans to achieve sustainable development, should have in place:

- *Comprehensive national assessments of risks from natural hazards, with these assessments taken into account in development plans.*
- *Mitigation plans at national and/or local levels, involving long-term prevention and preparedness and community awareness.*
- *Ready access to global, regional, national and local warning systems and broad dissemination of warnings.*

Exhibits

A hall will be available for exhibits. Participants are invited to prepare exhibits illustrating their work. Specific requirements will be printed in STOP Disasters and later Conference information.

Social Events

On Monday evening there will be a welcome reception hosted by the Japanese Government. The City of Yokohama will host a farewell party on Thursday evening.

Excursions

On Friday afternoon, an excursion to sites in and around the city of Yokohama will be organized for participants and accompanying persons.

Public Participation

The plenary sessions as well as the exhibits will be open to the general public.

Publications

The activities, agenda and abstracts of presentations will be published in a Programme, and the results of the Conference will be summarized in a Report.

Interpretation

Simultaneous interpretation will be provided in English, French, Spanish and Japanese in plenary sessions

Registration

Potential participants are invited to send a **Request for Conference Information** to the IDNDR Secretariat in Geneva as soon as possible. Further information will then be provided.

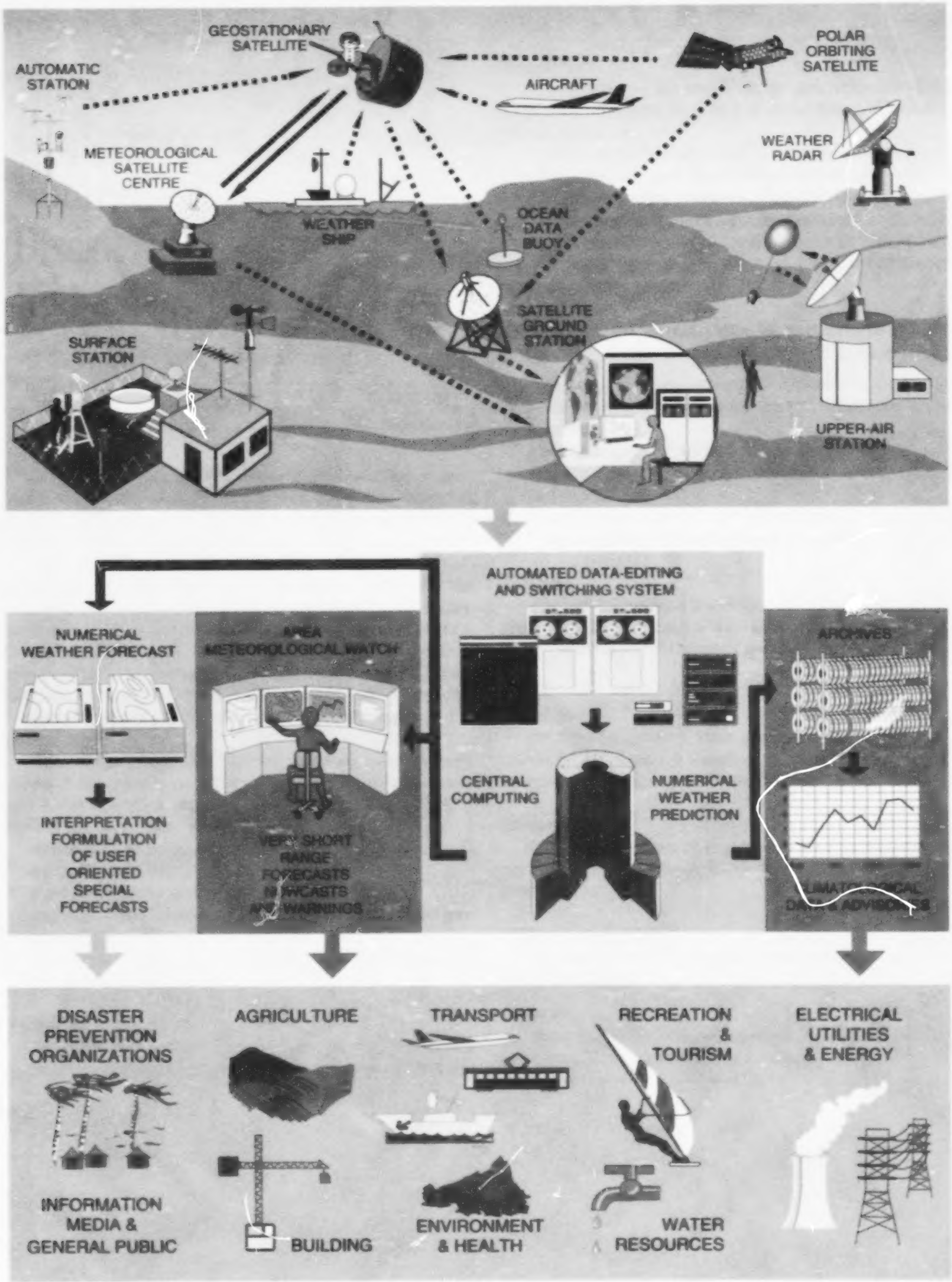
Study Tours

Study tours of from one to four days' duration, will be arranged both before and after the Conference. Guided technical tours will include visits to research, operational and study centres dealing with earthquakes, tsunamis, volcanoes, riverine flooding, lifelines and other hazards. Schedules and costs will be published in future conference notices.

World Conference on
Natural Disaster
Reduction
Yokohama, Japan, 23-27 May 1994

IDNDR 1990 - 2000

"A Safer World for the 21st Century"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AIRCRAFT
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WEATHER RADAR
WEATHER SHIP
OCEAN DATA BUOY
SATELLITE GROUND STATION
SURFACE STATION
UPPER-AIR STATION
AUTOMATED DATA-EDITING AND SWITCHING SYSTEM
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INFORMATION MEDIA & GENERAL PUBLIC
BUILDING
ENVIRONMENT & HEALTH
WATER RESOURCES

The operation of a national Meteorological Service: observation and data collection (top), data processing and preparation of forecasts, warnings and climatological advisories (centre), dissemination of forecasts and other specialized information to users (bottom)

For more information, please contact:

Information and Public Affairs Office
World Meteorological Organization (WMO)
41, Giuseppe-Motta ave.
P.O. Box 2300
1211 Geneva 2 - SWITZERLAND

Telephone : (+ 41 22) 730 8315
Telefax : (+ 41 22) 734 2326
Telex : 41 41 99 OMM CH

A Safer World
for the 21st Century

INTERNATIONAL DECADE FOR NATURAL DISASTER REDUCTION
UNITED NATIONS
29c
WARNING
INTERNATIONALE DEKADE FÜR KATASTROPHENVORBEUGUNG
VEREINTE NATIONEN
VORSORGE
DECENNIE INTERNATIONALE DE LA PRÉVENTION DES CATASTROPHES NATURELLES
NATIONS UNIES

IDNDR

World Conference on Natural Disaster Reduction

23-27 May 1994, Yokohama, Japan

A SAFER WORLD FOR THE 21ST CENTURY

The World Conference on Natural Disaster Reduction, convened by the United Nations General Assembly, will be held in Yokohama from 23 to 27 May 1994.

As part of the mid-term review of the International Decade of Natural Disaster Reduction (IDNDR), the Conference will bring together professionals from a wide range of disciplines to take stock of progress in disaster prevention, preparedness and mitigation during the first half of the 1990s.

The Conference will also adopt the Yokohama Strategy for a Safer World, which will include an Action Plan to the year 2000 and beyond, to limit the devastating impact that disasters have on our environment, development and health.

> *"There is no reason why we should wait passively for the next natural disaster to strike. We should mobilize scientific knowledge and technological know-how. We should give a positive response to the strong political interest and commitment of the international community."*
>
> *Boutros Boutros-Ghali,*
> *Secretary-General of the United Nations*

WHY HOLD A WORLD CONFERENCE ON NATURAL DISASTER REDUCTION?

Can we bequeath to our children a safer world for the twenty-first century? "Not unless we reduce the suffering and damage associated with disasters", says Dr. Olavi Elo, head of the United Nations International Decade for Natural Disaster Reduction.

Damage inflicted by natural disasters is staggering, killing more than one million people every decade. Global economic losses from natural disasters increased threefold from the 1960s to the 1980s and worsened in the 1990s, reaching over $100 billion in 1991-1992 alone. Still uncounted are many social and health costs of lost homes, jobs and hopes—the basics of human life.

People everywhere are vulnerable to natural disasters, which can worsen most of the problems we already face: migration, economic development, health and social well-being, population growth, environmental degradation and unregulated industrialization.

Although we have the knowledge and technology to prevent many of these tragedies, only sporadically are they integrated in development projects and relief activities. Communities continue to expand into areas prone to floods, earthquakes, landslides, lava flows, fires and high winds. Existing villages and cities struck by natural disasters do not always rebuild in a way that makes them less vulnerable to future disasters. And an increasing proportion of funds is spent on short-term disaster relief, while operational development funding is on the decline.

The continued focus on post-emergency relief, fragmentation among disaster management professionals, and poor links between policy makers and practitioners are taking their toll. More intensive cooperation is needed between all sectors of the international community.

To ignore disaster reduction measures is to allow needless erosion of our economic infrastructure and cultural heritage; more environmental degradation; and shattered lives, careers and communities.

> ***"Resources are shrinking. Disaster threats are growing. The time is right for preventive thinking."***
> ***Mr. Peter Hansen, Under-Secretary-General for Humanitarian Affairs, United Nations***

TOWARDS A COMPREHENSIVE APPROACH

~Building a Coalition for Disaster Reduction~

The Yokohama Conference will be the first United Nations conference dedicated exclusively to the topic of disaster reduction, bringing together policy makers, practitioners and experts from the private and the public sectors and, of course, from voluntary organizations.

Their knowledge and experience will be brought together based on the following strategies:

● PROGRESS FROM RELIEF TO PREVENTION, PREPAREDNESS AND MITIGATION

Instead of focusing on responsive action to be taken *following* a disaster, this Conference will shed light on preventive measures to be taken *before* a disaster hits and leaves in its wake a trail of destruction. The international community will address root causes of hazards, explore ways of confining damage to the minimum, prepare communities to cope with disasters and ensure that short-term relief and rehabilitation efforts contribute to a longer-term sustainable development and vice versa.

● DEVELOP COMMON APPROACHES

Natural disasters do not occur in a vacuum. Rather, they are intricately linked to human decisions. Where we live, what we build, how we work and how we behave during disasters all affect the extent of damage. Participants in the Conference will jointly explore common approaches to deal with these complex issues.

> ***"Increased vulnerability to disaster stems largely from environmental degradation and uncontrolled urban growth, exacerbated by demographic pressure and political and institutional gaps. The real culprit is man."***
>
> *Dr. Philippe Masure, Member, Scientific and Technical Committee, in* Le Monde, *24 November 1993*

● FORGE NEW PARTNERSHIPS

By providing a forum for interaction and debate, the Yokohama Conference will bring together groups that have played parallel but separate roles in reducing vulnerability to disasters, in order to eradicate needless human suffering.

● RAISE POLITICAL AND PUBLIC AWARENESS

This Conference will try to build a broader political support and public awareness, both of which are essential in making disaster reduction measures a part of our everyday lives. Education is also necessary to understand what the trade-offs are between making ourselves safer from hazards and not doing so.

PARTICIPANTS AT THE CONFERENCE

All States are invited and over 150 National IDNDR Committee delegates from around the world are expected to attend. Non-governmental organizations and scientific and technical associations that work to prevent and reduce the devastating effects of natural disasters have been especially encouraged to participate in national and regional preparations and in the Conference itself. They will be joined by specialized agencies and programmes of the United Nations system to organize and sponsor technical committee sessions on policy and technical issues.

THE AGENDA

Latest trends, successful examples and strategies of disaster reduction will be examined and constructive questions raised for the future.

PLENARY SESSIONS will highlight national assessments and future plans of disaster-reduction activities. Prepared in cooperation with IDNDR National Committees and Focal Points around the world, the plenaries will serve as a forum for official national delegations to exchange ideas.

MAIN COMMITTEE SESSION (A), on public- and private-sector interface, organized by the World Health Organization, will examine ways of cooperation between voluntary agencies, the private sector and the public sector in linking disaster management to sustainable development.

MAIN COMMITTEE SESSION (B), on regional issues, organized by the Pan American Health Organization and the World Health Organization, will present the outcome of a year-long preparatory process in every major world region.

TECHNICAL COMMITTEES, which are to be held throughout the Conference, will explore in depth specific themes related to disaster management. The topics and organizers of these sessions include the following:

- *Vulnerable communities*
  - *International Federation of the Red Cross and Red Crescent Societies (IFRC)*
  - *United Nations Children's Fund (UNICEF)*

- *Hazard-resistant construction*
  - *International Council for Scientific Unions (ICSU)*
  - *Federation of Engineering Organizations (WFEO)*

- *The effects of disasters on modern societies*
  - *United Nations Centre for Regional Development (UNCRD)*

- *Technological and natural hazard interrelationships*
  - *United Nations Environment Programme (UNEP)*

- *Economic aspects of disaster reduction for sustainable development*
  - *United States National Academy of Science*
  - *World Bank*

- *Warning systems*
  - *World Meteorological Organization (WMO)*
  - *United Nations Educational, Scientific and Cultural Organization (UNESCO)*

- *Drought management*
  - *Food and Agriculture Organization of the United Nations (FAO)*
  - *World Food Programme (WFP)*
  - *International Fund for Agricultural Development (IFAD)*

Scientific and technical poster sessions will be organized by UNESCO. These exhibitions by National IDNDR Committees, scientific associations, the United Nations and its agencies and programmes will illustrate their achievements related to disaster reduction.

SOME QUESTIONS TO BE ASKED...

- *Can we adopt a common, practical approach that links disaster management and sustainable development?*

- *Can we find new ways for Governments, private companies and voluntary agencies to work together before, during and after disasters?*

- *Can we encourage disaster relief officials and development planners to systematically include natural disaster reduction measures in their planning?*

- *Can we develop a common approach to disaster reduction, acknowledging the links between natural disasters, technological disasters and complex emergencies?*

- *Can we identify and share the best ways for communities to develop self-reliance to cope with disasters?*

- *Can we encourage better implementation of existing disaster reduction procedures, regulations, laws and programmes?*

AFTER THE CONFERENCE

In addition to producing an action plan for the future, Conference results will be reported to the 1994 session of the Economic and Social Council (ECOSOC), as requested by the General Assembly, in order to provide the mid-term report of IDNDR to ECOSOC.

It is expected that Conference recommendations will be integrated in United Nations initiatives in the fields of emergency relief, sustainable development, population, climate change, health, education and other areas.

DID YOU KNOW...?

Economic damages from disasters have tripled in the last 30 years (in constant 1990 dollars). In the 60s, disasters cost $40 billion; in the 70s, $70 billion; in the 80s, $120 billion.

(Munich Reinsurance, 1992)

A minimum of $280 billion in damages are projected for the 90s; yet if we invest in disaster prevention, these losses could be reduced by 70%.

(USAID Disaster Prevention, Mitigation, and Preparedness Strategy 1992)

Affected communities bear the greatest financial burden in disasters; international aid seldom exceeds an estimated 4 percent of losses.

(Zupka, "Economic Aspects of Disasters," UNDRO News, *1988)*

Japan averages 63 deaths per year from natural disasters; Peru—with one sixth the population and similar natural hazards—averages 2,900 deaths per year... GNP lost due to disasters is estimated to be 20 times greater in developing countries than developed countries.

(Anderson, "Which Costs More, Prevention or Recovery?" in World Bank, Managing Natural Disasters and the Environment, *1991)*

The 1990 eruption of Mt. Pinatubo in the Philippines displaced over a million people at one time—nearly 2% of the country's total population.
(Citizens' Disaster Response Center,
Disasters—The Philippine Experience, *1992)*

Slow-onset disasters are the primary cause of population movement.
(UNFPA, State of the World's Population, *1993)*

ABOUT THE INTERNATIONAL DECADE FOR NATURAL DISASTER REDUCTION

As we approach the twenty-first century, population growth, ecological damage, rapid industrialization and socio-economic imbalances make the chances of major natural disasters around the world higher than ever. We need not, however, be fatalistic about the vagaries of nature.

To make people aware of how much they can do to make themselves safer from natural disasters, the United Nations launched the International Decade for Natural Disaster Reduction (IDNDR, 1990-2000). The World

Conference on Natural Disaster Reduction is an important part of IDNDR's awareness-building process.

IDNDR works through national committees and focal points which exist in over 125 countries. Its secretariat, located in Geneva, is part of the **United Nations Department of Humanitarian Affairs.** IDNDR also has an advisory body known as its Scientific and Technical Committee. This group of 25 specialists, with diverse backgrounds in such areas as geology, journalism, emergency relief, meteorology and medicine, provides guidance on substantive issues. Another group of well-known personalities, the Special High-Level Council, promotes global awareness of disaster reduction.

IDNDR publishes a bimonthly magazine, *STOP DISASTERS*, and conducts a promotional campaign on the second Wednesday of each October, designated as the International Day for Natural Disaster Reduction.

For Conference information and registration, contact:

IDNDR Secretariat
Palais des Nations
1211 Geneva 10
Switzerland
Fax: (41 22) 733 8695
Tel: (41 22) 798 6894

For media accreditation:

All media representatives will be required to present United Nations press credentials, issued specifically for the Conference. Applications for press passes will be available from:

(Before 21 April 1994)

Media Accreditation and Liaison Unit
World Conference on
Natural Disaster Reduction

Department of Public Information
Room S-250
United Nations
New York, NY 10017, USA
Fax: (1-212) 963-4642
Tel: (1-212) 963-6934

(After 25 April 1994)

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World Conference on
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Shibuya-ku, Tokyo 150, Japan
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United Nations

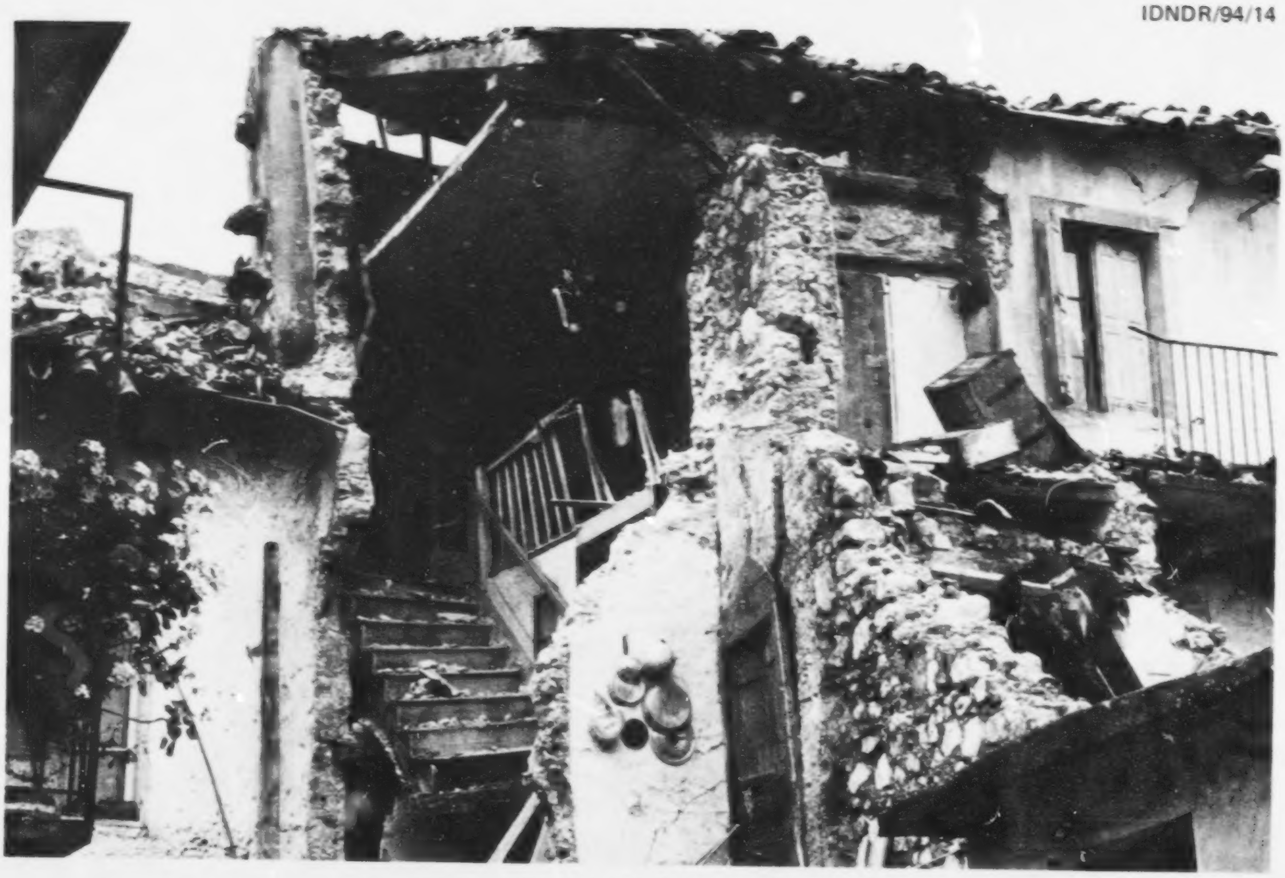
Earthquake of 9th of February 1971, San Fernando, California
Photo: J. R. Evans/NOAA

Drought, Sahel 1985
Photo: L. de Toledo, Federation of Red Cross and Red Crescent Societies

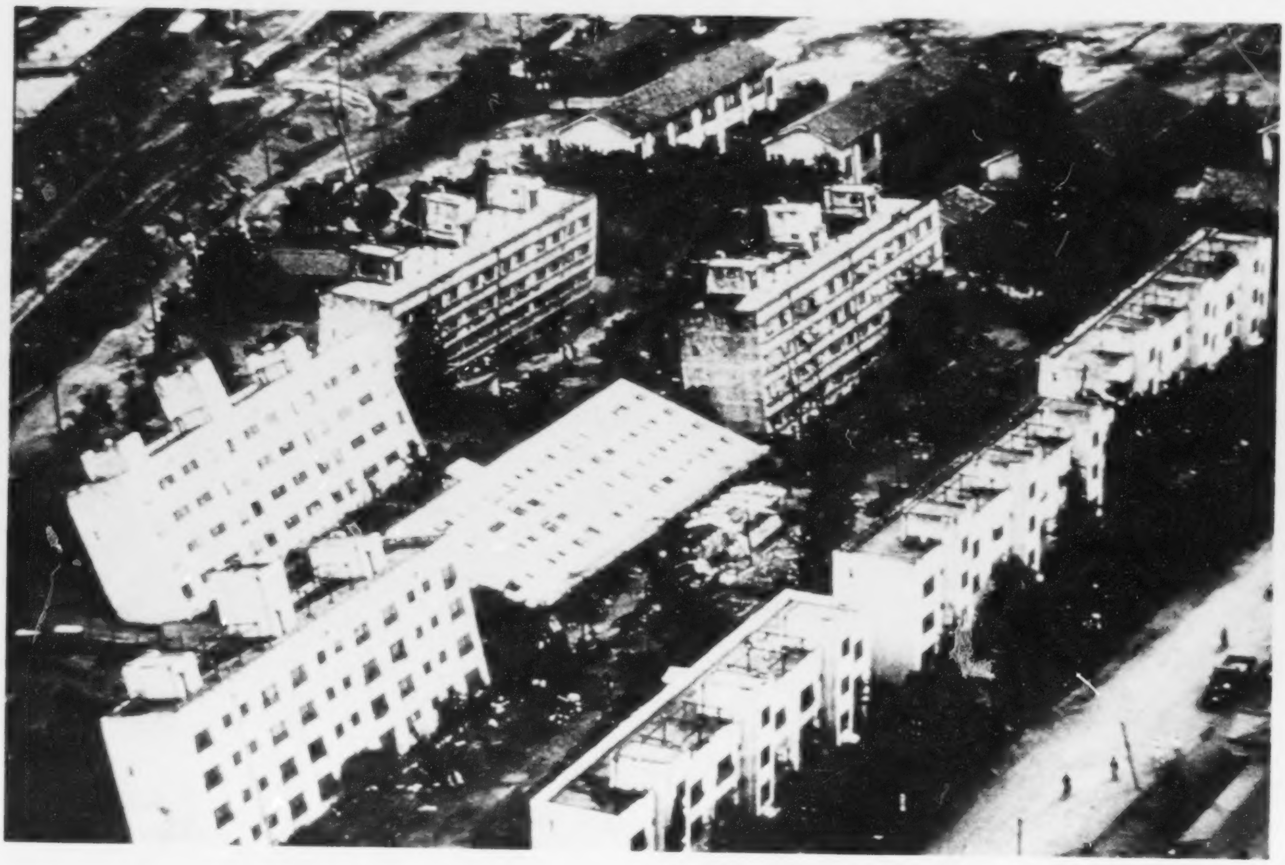
Fire, Australia
Photo: B. Ladley Michael

Land ownership

Vulnerability to disasters
Photo: OXFAM

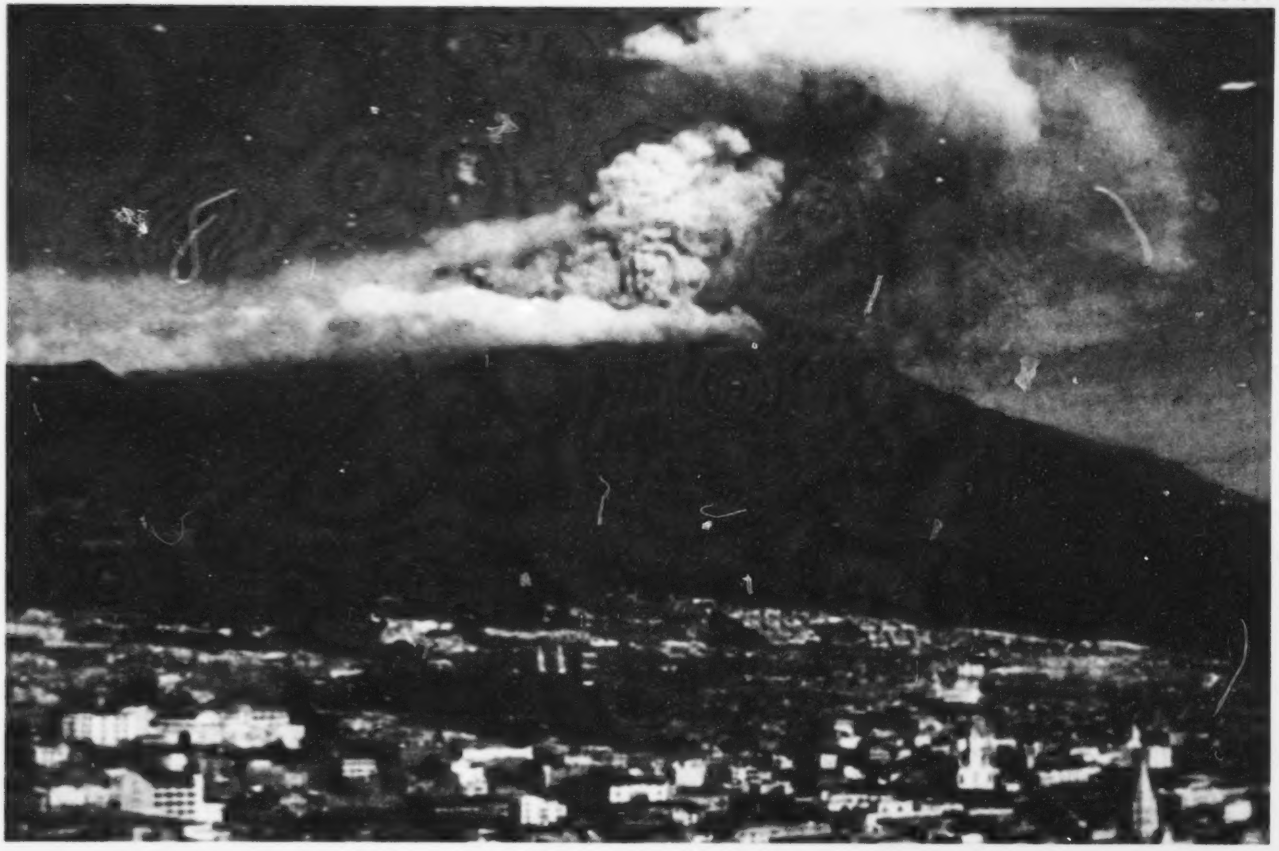


Earthquake of 6th of May 1976, Gemona del Friuli, Italy
Photo: UNESCO



Earthquake of 16th of June 1964, Niigata, Japan
Photo: NOAA/EDIS

IDNDR/94/14



Volcan Galeras, Narino, Colombia
Photo: O. D. Cardona

Hurricane David, 1979, Dominican Republic
Photo: DHA

Secretariat of the International Decade for Natural Disaster Reduction